

Twenty-Second Annual Report
of the
Provincial Board of Health
of Ontario



For the Year 1903

Twenty-Second Annual Report

OF THE

Provincial Board of Health

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Province of Ontario
(Canada)

FOR THE YEAR

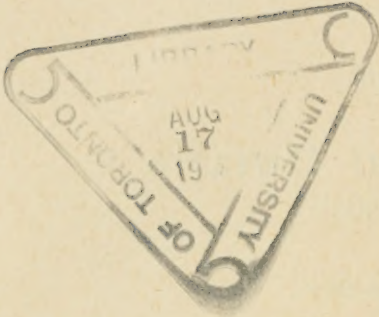
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PROVINCIAL BOARD OF HEALTH.

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Hon. J. R. Stratton,
Provincial Secretary.

Chairman.

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J. J. Cassidy, M.D.	-	-	-	-	-	"
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Chas. A. Hodgetts, M.D., Secretary.	-	-	-	-	-	Toronto.

Bacteriologist in charge of the Laboratory.

John A. Amyot, M.D.

INTRODUCTION.

LETTER OF TRANSMISSION BY THE CHAIRMAN

To His Honour, the HONOURABLE MORTIMER CLARK, ESQ., Lieutenant-Governor of the Province of Ontario.

May it please Your Honor:

The Provincial Board of Health has much pleasure in presenting to you Twenty-second Annual Report for your approval.

It is a matter of congratulation that the health of this fair Province has been good during the past year. Of the contagious diseases, smallpox, which occupied so prominent a part in our last report, has decreased, so that there were only 13 cases in December last, with no deaths, having abated very rapidly since May last. In fact there were only 21 deaths from this disease throughout the year. During the year a large number of cases of scarlatina were reported, no less than 3,677, with 529 deaths, while there were 3,559 cases of diphtheria, with 478 deaths. There was a marked decrease in typhoid fever and tuberculosis, there being only 1,012 cases of the former, with 298 deaths, while from the latter there were 2,072 deaths, being a very considerable reduction in the mortality compared with that of previous years. This is gratifying, as nearly one of every ten deaths reported is the result of this formidable disease, tuberculosis.

The assistance given by your Honour's Government, in the erection of local Sanatoria, and in various other ways, is now being recognized by the more intelligent portion of the public.

I need not remind you of the large increase that is being made from year to year in our sewerage systems and in our waterworks, and the improved supplies of water, which are leading factors in lessening mortality.

The important amendments to the Public Health Act during the past year have made it so that Medical Health Officers are permitted to enter lodgings and tenement houses and laundries, when overcrowded and filthy, and regulate them accordingly. Likewise the new Regulations in connection with scarlet fever and diphtheria, passed during 1903, are very important, and cannot but have a satisfactory result. The valuable report on Hygiene of Barber

Shops, when fully in operation, cannot but stop the spread of many contagious diseases.

It is with a great deal of pleasure I refer to the way in which our Regulations are received and acted upon in the unorganized portions of Ontario.

The Biological Department has now quarters and equipment second to none on the continent, and the people at large are yearly becoming more conversant with its duties, and thereby increasing the work.

The reports received from the cities are very satisfactory, the death rate in one of them being as low as 11 in the thousand, while the death rate of the Province is a little over twelve per thousand.

Late in the year the Board directed its Committee on School Hygiene to undertake an investigation of the sanitary condition of the schools of the Province, with a view of obtaining information which would be of assistance in having any defects in existing conditions improved. It is the intention of the Board to have a series of experiments, Bacteriological and Chemical, upon the air of schools, and thus determine what systems of ventilation are the most efficient.

The matter of County Medical Health Officers, which has taken up quite a portion of our time for the past ten years, has received considerable attention during the past year, and we are glad to know it is yearly growing into the confidence of our Local Medical Health Officers, and others interested in sanitary matters.

In closing, I wish to congratulate your Honour on being called to the high position of the Lieutenant-Governorship of this Province and to thank you and your Government for the very intelligent and practical help you have given up in the pursuance of our difficult work of improving the sanitary condition of this people, and thus assisting in the lessening of the death rate, and thereby assisting in their happiness and wealth.

Respectfully submitted,

E. E. KITCHEN,

PART I.

CHAPTER I.

THE EVOLUTION OF PUBLIC HEALTH AS A DEPARTMENT OF MUNICIPAL GOVERNMENT.

By P. H. Bryce, M.A., M.D., Secretary.

In Chapter I. of the Annual Report of the Board for 1902, a synopsis of the history of the "Evolution of Public Health as a Department of the Government" was discussed, and the progress of those scientific discoveries which have made such evolution result in systematized governmental methods for the prevention of diseases was somewhat fully outlined. In the report for the present year, it seems desirable that a more minute survey be made of the field of public health progress by illustrating the details of what has been done from time to time during the past in the matter of "Municipal" public health work.

The history of municipal institutions in different ages and in different countries has been made the study of political economists and philosophers from the earliest times, and the essentials of good citizenship formed an important part of Plato's dissertations in different works, such as his "Republic." Essentially, however, the modern study began with the French encyclopaedists and the philosophers of the latter part of the eighteenth century; but not until the great social and economic movements of the first half of the nineteenth century did municipalities develop that sense either of municipal power or ethical responsibility, which caused them to take up in any serious way questions relating to municipal hygiene, and the mutually dependent relations of the public health and commercial interests of the community. In my paper on "The Progress of Public Health During the 19th Century," after referring to the industrial expansion in England, toward the end of the eighteenth century, I find it stated: "What this industrial expansion means may be gathered from the fact that within the 40 years up to 1840, the number of those engaged in the cotton manufacture in England had risen from 80,000 to 883,000; while the population of Lancashire alone, during the 18th century, rose from 166,200 to 672,000. To-day it is over 4,000,000."

"To these causes, briefly summarized, are we to look for the beginnings of what we now call State Medicine, of which England during the 19th century has been the most fruitful field. Up

to the end of the century the rapid expansion of her foreign trade, owing to these discoveries, and the high prices consequent upon the Napoleonic wars created such high rate of wages and so great general prosperity that the sanitary evils which were so rapidly growing up with the development of the factory system were as yet hardly noticed. But the escape from a calamity such as had overtaken France in the Revolution had accelerated what is called the "Evangelical movements" (so large a factor in educating the national conscience in England), to a sense of the truth of the Scripture, 'That man is his brother's keeper.' Associated with the younger Pitt, the model of the domestic statesman, as a personal friend, was William Wilberforce, whose broad Christianity and sound common-sense served to make him the first social reformer, whose energies as a legislator were definitely devoted to the amelioration of the condition of his fellow-men; while being supported outside by the Society for the Abolition of the Slave-trade, amongst whom the Quakers were the most active. Public meetings were held, and statistics were carefully collected to show the inevitable horrors of the traffic. Wilberforce presented in 1788 no less than thirteen petitions to Parliament praying for its abolition; and the first steps were taken in that year to mitigate the horrors of the ocean passage. The opposition was great, and the fight prolonged. But that strong, practical sense of England, which time and again had forced Parliament to act, as in the Reform Bill of 1831, and the repeal of the Corn Laws in 1846, had been aroused; and the people proved their sincerity by multitudes refusing to use sugar, as being a product of slave labor. This education of the public conscience at public meetings was now for the first time becoming a normal instrument of politics, and of such influence under popular government, we, in our day, are fully convinced."

In further illustration of this growth of public opinion, the following may be quoted from a paper by Thomas Chambers, Common Sergeant of London, on "The Social Condition of the People, as

affecting and affected by the Law," read before the Social Science Congress of 1859.

"The immemorial conflict of opinion in all civilized countries as to what should be the provisions of the law has been succeeded in our country by a controversy as to what is its legitimate province—an inquiry more fundamental and more momentous, and one which arises in respect to innumerable matters which from time to time become or are proposed as the subjects of legislation. This contest over the principles which should govern the action of a legislature and prescribe the limits of its interference, is probably waged with more earnestness on the field of operations of this Association, and in respect to the various subjects embraced by it than in relation to any others within the range of public discussion. What the Government should do, and what it should for bear, in relation to education, to the prevention of crime and reformation of criminals, to public health and social economy, is likely to be a matter of animated and prolonged debate. I do not propose to hazard any opinion on a point so difficult, or to presume to say when the law should speak or when it should be silent. My object is humbler, and my task easier. I propose to offer a few illustrations of the way in which legislative acts have affected the social condition of the people, and the social condition of the people has affected the action of the Legislature; so that there has been between the two an action and a re-action, a mutual influence and operation of one upon the other. Some obvious inferences, not remotely bearing on the objects we have in view, will suggest themselves as the result of these illustrations."

How acutely sensitive the public conscience had become at the time when this paper was read, in matters directly relating to the public health, is illustrated further by the address on Public Health by the Right Hon. W. Cowper, M.P., at the same Congress, in 1859. He pointed out that the Section on Public Health had to deal with "The physical laws of nature, and to consider how the arrangements of society, the occupations of the people, municipal regulations, and Acts of Parliament, may be so directed as to secure obedience to those laws, and to avoid the penalties consequent on breaking them."

Further, at the same Congress, in an "Address on Civilization in England," Sir James K. Shuttleworth said:

"Great advance has been made during the last twenty years, in these forms of improvement, both in town and country. The physical condition of the

people has always been greatly ameliorated by the cheapening of food and clothing, and all the other necessities of life, while their habits and wages have improved. The protection of women and children under thirteen from excessive hours of labor, and the prohibition of the employment of women in mines, have had a practical effect beyond the mere letter of the law. Excessive hours of work for men are discountenanced by public opinion; factories and mines are subject to regulations for the protection of life and health; and, what the law does not require, an intelligent sense of Christian duty often effects. The new hamlets, villages and towns have, in the last half century, and especially in the last twenty-five years, been organized as centres of Christian influence by the building of churches, and chapels; and schools. We have spent many millions on these buildings. We probably now expend about £2,000,000 annually on the education of the people. In the last quarter of a century literature has been cheapened for the use of the masses by such societies as that for diffusing useful knowledge, over which Lord Brougham has presided since its origin. The press has become the great instructor of the people in all social and political topics. An earnest practical effort has been within the same period made to foster in the working population, habits of prudence by savings banks, in which £34,000,000 are accumulated; by building and benefit societies, in which large funds have been amassed; by the possession of cottages and small freeholds; by temperance leagues; by societies of mutual improvement, and mechanics' institutes; by advice, remonstrance, and example."

Such quotations illustrate the situation so far as the evolution of the public health conscience had gone at the end of the period of the struggle for representative institutions which had marked the first half of the nineteenth century. How, however, the differentiation of public health work as a part of this municipal government came about, forms a part of the larger study, which extends back to the days when Justices of the Peace were first appointed under Edward III. (1327-1377). At first these exercised at their quarterly sessions a criminal jurisdiction; but these duties were gradually extended, first to carrying out the "Statutes of laborers," and thence from the bare idea of police their work gradually widened and deepened its preventive activities to meet the growing and diversifying requirements of economic and social development."

"And so the Justices of the Peace, ori-

ginally instituted solely to superintend police, came to be recognized by the English Crown as the first and only organs of its executive." Along with this institution were erected three great principles of English administration which will stand.

"(a) Thenceforth, the counties and the towns taken out of them by charters of incorporation were recognized by law as the only territorial divisions of the kingdom.

"(b) The qualifications for executing public authority in these districts were landed estate in the particular county for a County Justice, and for a Borough Justice membership of a municipal corporation.

"(c) A third point to be noticed in this institution is the judicial character of the functionaries to whom local administration was entrusted, implying that all local administration is jurisdiction, that is, the interpretation and execution of laws. The old hundreds and tithings came to be subordinated to the Justices of the Peace. Thus there became a landmark in the struggle against the centralizing tendencies of Government."

Under Elizabeth the care of the poor, formerly dealt with as the duty and privilege of the Church, was treated as a national duty, "but as a local burden to be undertaken separately, by each local unit," and hence the parish made its appearance as the civil unit, overriding the tithings and hundreds of feudal days. The statute of 1601 made the parish the unit for poor law purposes, and poor law overseers were appointed, and a local tax, called the poor-rate, was levied to cover the cost of maintaining the poor, and real property, or visible estate, became the basis of local taxation in England. To unify procedure, these new officers were nominated by the Justices of the Peace, and their work supervised by these; while by the end of Elizabeth's reign, parochial government included the making of roads and bridges.

Further, though the fact that the Tudors gave municipal character to various towns for a monetary consideration, the power to govern and make by-laws became granted to a narrow, select body of burgesses, recognized gradually as permanent, usually subservient to the Crown, and gradually termed Freemen, as distinct from the body of citizens proper, and in some towns becoming (ex-officio) Justices of the Peace. It was by multiplying town charters and these small select bodies who would be most likely to elect as their representatives nominees of the

Crown, that the latter hoped to minimize the growing power of Parliament. It was this system, developed fully by the Stuart dynasty, that finally brought on the struggle, accentuated by religious intolerance, between the old unwritten law of local autonomy seated deep in the heart of the Anglo-Saxon people and the crown.

With the advent of William of Orange, the battle between absolute and constitutional government came to an end, and the long-established maxim that every servant of the King was amenable, not only to an ordinary court of law, but to the Privy Council, was destroyed. Hence appeals now became possible from the local Justices to the Courts of Quarter Sessions, and again from these courts to the King's Bench. All these changes resulting, took place in the eighteenth century, with very few statutory changes. Hence, "Not law, but the usage of a series of party leaders, has developed this Parliamentary system."

With the great development of trade and the springing up of industrial towns in the eighteenth century, local needs of many kinds developed, and so Private Bills were constantly brought before Parliament for ratification; but which even to-day, under the Continental system, would be directed by the Monarch or his immediate servants, without any control by the Estates of the realm. Amidst the convulsions of party government in the eighteenth century, gradually there sprang in the growing centres of industrial activity new social forces, partly based upon a sense of local needs and of local rights, and a power to enforce them, stimulated at home by the radical changes toward a State Church, and by non-conformists abroad, by the Jacobism of a French revolution, resulting in the Reform Bill of 1832. The corrupt system of corporate franchises and select bodies was put an end to by a clause giving the vote to £10 householders, and the application of the new ideas were applied at once to the work of local government. It was to reform the Poor Law System, practically that of Elizabeth, that the energies of the ministry of Lord Grey were applied in the Poor Law Amendment Act of 1834.

The old Law of Settlement, by which a poor man could be returned to his native parish was abolished, indiscriminate outdoor relief ended, and the poor-house made the alternative to the pauper, and the several old parish units brought into a single Poor Law Union for economy of large operations, a better classification of paupers made pos-

sible, and a Board of Guardians created, partly appointive by the Justices, and partly elective by the ratepayers. Executive officers were appointed by the Boards of Guardians, with a Central Poor Law Board of Commissioners, who sat in London with large powers over the local authorities.

This urgent parish reform having been accomplished, a movement towards municipal reform was at once inaugurated. In 1834 a commission investigated the matter, and pointed out how the municipal system, which had existed for two centuries since charters were sold by the Crown, and close corporations of "Freemen" justices were appointed, had completely broken down. "The most common defect in the constitution of the municipal corporations of England and Wales" was, in the opinion of the Commissioners, that they were regarded, and regarded themselves, as independent.

Their affairs were managed with the utmost secrecy, and information could be obtained only compulsorily by a mandamus. "How terribly wasteful, costly and unworkable such machinery must have been, and how utterly incompetent to meet the steadily increasing demands of crowded industry for light and air and health and security needs no elaborate proof."

On this report was based Lord John Russell's Bill of 1835, resulting in the "Municipal Corporations Act of 1839." This Bill provided for, (a) a municipal corporation with a council, elected by the equal and direct vote of all ratepayers, resident for three years. Boroughs of 9,000 population were divided into wards, and those elected were required to serve, of whom a third to be called aldermen, were elected for six years. (b) The Justices of the Peace disappeared, and Magistrates, appointed by the Crown, dealt only with judicial matters. (c) Central Government control was applicable where loans were necessary. (d) The functions of Council applied to local finance, police, and passing by-laws, and the appointment of officials, of which the Town Clerk was permanent.

After sixty-five years this Act of compromises remains almost unchanged—that of 1882 being little more than a consolidation. "Local government has been municipalized," is the formula under which Englishmen summarize the history of the legislation which has ended in County, District and Parish Councils.

It is obvious that in the two Acts thus summarized two principles somewhat at variance are illustrated, the

one represented by the Poor Law, consisting partly of a central and partly of local control; while the Municipal Corporations Act represents in all its functions, and nearly all its powers, a true people's parliament.

Such, summed up as briefly as possible, is the history of the evolution of those primary regulations, making possible the life of a society constantly growing in complexity.

The first belonged to that side of life, which marked the ethical status of the people, represented by a community Christian by law, and in some degree at least in its life, while the latter marked the political advancement of a nation, whose traditions led them back to the Saxon Witanagemot and the Magna Charta, to the point where they realized the meaning of the word "free-man," in their ability to plead their rights through their elected representatives, whether in Parliament or in the Municipal Council.

But, as we have seen, these two great Acts, the Poor Law and the Municipal Corporations Act, widening from precedent to precedent, under new life movements and advancing knowledge so, we naturally expect that other needs of the people should press themselves on the awakened individual and national conscience. As well stated, "Tiny market towns in Lancashire, Yorkshire and the Midlands, often became in the course of a generation or two, populous and smoky; slums offending against every rule of health, were built around insanitary factories; trout streams were converted into foul sewers, and every open space was a rubbish heap."

The organization of the parish or township was quite incapable of coping with these new conditions. Such were the conditions existing in different parts of Great Britain at the time, when in 1832 the young London lawyer, Edwin Chadwick, had begun the study of social problems in a practical way. So notable was his work, as seen in the papers on "Preventive Police," and "Public Charities in France," published in 1832, that he had been made Secretary of Lord Grey's Poor Law Commission in 1832, and in 1834 was appointed Secretary of the new Poor Law Board. Of him Lord John Russell, in 1839, when instructing the Poor Law Commissioners "to institute what afterwards became the far-famed enquiry into the health of the laboring classes of the other parts of England and Wales beyond the metropolis," and which was presented to the Home Secretary in 1842, said:

"For the relief of the destitute and prevention of pauperism, the improve-

ment of the public health and the physical condition of the population, there was no one to whose zeal and assiduity the country is more indebted than to Mr. Chadwick." So remarkable were the statements contained in this report, that all England was aroused; the Prince Consort became interested in sanitary reform, and through his influence Sir Robert Peel appointed a Royal Commission, consisting of Prof. Owen, Dr. Lyon Playfair, Mr. Robert Stephenson, Mr. Smith of Deanston, and Mr. William Cubbitt, to report on the whole subject of the health of the nation. Although no immediate legislative action followed, yet, in 1847, another commission was appointed to enquire into the sanitary condition of the metropolis.

The evidence of 35 witnesses therein set forth was most startling in its effects upon the public mind. The report of 1845, urged that the Crown should be empowered to suppress and inspect the administration of the general sanitary laws in large towns and populous districts; the water supply, drainage, privy and street cleaning should all come under one local authority, and that the central authority should be given power to deal with cases in which the local sanitary authority prove negligent in the performance of its duties. In 1845 the Parliament passed "The Model Acts," containing a number of clauses giving local authorities powers in certain health matters. In 1847 Lord Morpeth brought in a Health Bill, which, badly drafted, was withdrawn, but was introduced in 1848 as a Bill, which became the Public Health Act. Passed really as the result of impressions produced in the public mind by the cholera of 1847 and 1848, it is the first compulsory measure of public health imposed by Parliament upon local authorities, if we except an obsolete Act of James I., and the Vaccination Acts, passed in 3 and 4 Victoria, and directing the guardians and overseers of the poor, subject to the regulations of the Poor Law Commissioners, to contract with the Medical Officer of their district for the vaccination of all persons there resident. It contained the basic principle, subsequently developed so greatly, of a central authority, since it provides for a General Board of Health, appointed tentatively for five years, which was empowered to create local health districts and a Local Board wherever the local death rate rose above a definite figure in relation to population. In municipal boroughs the Town Council became the local sanitary authority. The sanitary authority had

large powers regarding sewerage, drainage, management of streets, and burial grounds, and regulating offensive trades. The Board was empowered to provide for this work by levying general and special district rates. Though the agitation which was set up against the centralizing of health authority resulted in the General Board of Health coming to an end in 1854, yet in the five years of its existence seventeen Acts of Parliament dealing with local matters, affecting 214 places, had been passed. Its influence for good had been most marked, and its work was continued by the appointment in 1855 of Mr. John Simon (later Sir John) as the first Medical Officer to a new Board appointed year by year until 1858, when the duties were laid upon him by the Local Government Act of 1858, which previously had been performed in part by the Home Secretary, and in part by the Privy Council.

Specific matters were gradually dealt with by special Acts of the Sanitary authorities. Many nuisances hitherto dealt with only under common law, had special Acts passed for regulating them. Such was the Nuisance Removal Act of 1855.

"The Local Government Act of 1858," or what was really "The Public Health Act of 1858," placed yet larger powers on Local Boards under different Model Acts; but the maintenance of the medical and other supervisory work by the central authority was continued. The Local Board was empowered to put in force by resolution within its sanitary area the whole sanitary code.

While much work of an executive, and yet more of a legislative character, was done in many districts, yet much was lacking, due to the absence of uniform local legislation in methods; there were many conflicting jurisdictions, and different applications of law in different places. Sanitary science had, however, become so advanced in its ideals and methods, and these executive evils had become so manifest by 1871, when most fatal epidemics of smallpox and scarlet fever were raging, that a Royal Sanitary Commission, appointed in 1868, reported in that year, and set forth most clearly the incompleteness, imperfections, and unworkability of the existing system. "Parliament had done its part by introducing scientific laws of public health, but the machinery of local government had proved insufficient to translate those laws into actual administration.

What the situation was so urgently demanding was uniformity of laws and one central supervising authority. Such

necessary powers had been distributed between the Poor Law Board, the Home Officer, the Medical Officer, the Privy Council, and the Board of Trade. The evils of crude drainage and waterworks systems everywhere existed, and the report laid the blame for the unsanitary conditions upon the permissive character of the law, the lack of local inspection, and to friction and opposition between the various local authorities. "Petty sectional divisions (the sphere of the Justice of the Peace), Poor Law Unions, highway districts, parishes and counties crossed and recrossed one another, and were often complicated by municipalities, Local Boards, and other organizations of a special sort. Nearly all had power to appoint officers, and to levy rates. Nowhere had the least regard been paid to uniformity of areas or convenience of administration."

To remedy these anomalous conditions the Commission proposed :

(1) One central authority; (2) making a sanitary code, or statutory public law proper, and (3) local laws regarding nuisances to be enforced, such, for instance, as Nuisance Removal Acts, by their being adopted as local by-laws. So clearly expressed were the ideas of the Commission, and so urgent were the public health demands at the time, that in 1871 a Local Government Board was created, and in 1872 the sanitary duties hitherto exercised by the Board of Trade and Home Office were transferred to it, and in 1875 all the laws were revised, codified, and included in the Public Health Act of 1875. This law is an amended consolidation of 43 statutes, has 343 sections, and 5 schedules, and presented a complete and methodical arrangement of all the health laws in force, and remains essentially unaltered to the present time.

As regards, however, the administration of this large body of health laws, a notable change has occurred through the passage of the Local Government Act of 1888.

By it boroughs of a population of 50,000 or over, and old counties having the same population became county units; in addition, certain other areas not possessing these conditions were organized into county areas, each having, as the others, a County Council. For Military, Parliamentary, and Judicial purposes, the old county districts remained, however, untouched. The real reason for such changes has been the great and unequal growth, especially in manufacturing districts, of the urban populations, by which some were given administrative powers of their own. Poor Law Unions and sanitary districts had been created in utter disregard of the old

county limits within which the county rate was laid. No wonder that boundaries that had been unaltered since feudal times required modification.

Thus section 50 states :

"Whenever any urban sanitary district is situate partly within and partly without the boundary of such country, the district shall be deemed to be within that county which contains the largest portion of the population of district according to the census of 1831."

It still remains true, however, that it is the old urban and rural districts which really have the burden of local government. Only the County Councils have acquired certain supervisory powers over them. Within these districts again are the ancient and original parishes, which under the Act of 1894 continue to retain the original rights of the town meeting and appointment of vestries.

The County Justices in Quarter Sessions, as an administrative body, practically disappeared in 1888, when the County Council took over the work, and became instead "a body corporate." They are elected by the resident householders for three years, and the councillors elect a board of aldermen out of their own members for six years. The Council elects its own Chairman, who becomes ex-officio a Justice of the Peace. In addition to its other functions, the County Council is empowered to appoint a Coroner for the county, and a Medical Officer of Health. This latter officer must not only be a qualified medical practitioner, but must have further special qualifications, as a Diploma in Public Health. To such medical officer, any sanitary district within the county may delegate the administrative duties, which are laid upon the medical officer, which such a district must appoint. Further, on the report of this officer, the County Council can provide for the construction of an isolation hospital for such single or several areas within its jurisdiction as it deems necessary, on the petition of such boroughs, parish councils, or districts.

After 1835, most local work was performed by the Borough Council, and in counties for lack of any Council, by the Justices. In large matters, as, for instance, sanitary supervision of streams, these boards operated together. The growing duties demanded, however, legal adjustment, and have resulted in the County Councils Act of 1888. For county purposes it was finally determined that all boroughs of less than 50,000 population should come within the new county organization. Hence, any county could have: (a) county boroughs with more than 50,000; (b) municipalities of

from 50,000 to 10,000 population; (c) municipalities under 10,000 population, all in practice continuing to be governed by the municipal code of 1882, with its mayor, aldermen and councillors, and borough magistrates. Under the act of 1888 the municipal boroughs of over 50,000 have all the powers of County Councils, or each is "an administrative county of itself, with the new county functions, added to the old borough powers, these latter especially including licensing powers, transferred from the Justices of the Quarter Sessions, and the distributors of the whiskey money."

They similarly have powers to make light railways under the Act, must care for pauper lunatics as do the county councils, but no longer pay anything to the county tax rate.

The non-county, or smaller boroughs,, have in some cases separate Magistrates from the county, and are separate urban sanitary authorities, with similar powers to the county boroughs. These, of course, elect members of the County Council.

All boroughs smaller than 10,000 have no power to maintain a separate police force. Now they are all policed by the County Council appointees, while the county administers acts relating to foods and drugs and animal diseases.

The object of the act of 1888 has been to drive all the smaller boroughs to work under the County Council, by making them pay county rates, should they still determine to continue Courts of Quarter Sessions, coroners, etc., and to drive them to become Urban Districts, with their own elective Councils.

This revolution in local administration had thus been brought about by congestion of the work of the Local Government Board.

Such, briefly, is the evolution and compass of the work of County Councils, under the Act of 1888. The sanitary areas required by the Public Health Act of 1875, which placed all England under the Public Health Act, naturally demanded definite machinery for administration. The boundaries of such areas, whether one or several municipal areas, already existed, or were determined by an order of the Local Government Board. Of the latter it appears there were in 1891 in England and Wales, 682 local boards, and 33 joint boards, while in 1889 there were exactly 800 to a population of 32,000,000. Their powers were wide, but variously exercised under the clauses relating especially to nuisances. Under the Local Government Act of 1894, the old sanitary districts were swept away, and became known as Urban Districts, with Councils, which are elective for three years, in a man-

ner similar to the election of County Councils, and have been formed principally out of populous rural (suburban) districts.

The duties of these District Councils are, as previously, chiefly the administration of sanitary laws, which relate to drainage, water supply, nuisances, lodging-houses, infectious diseases, roads, lighting, the regulation of traffic, and so on; but under the Act of 1902 these District Councils became local education authorities; and for whatever number of parishes or other areas or districts which may be included in them, they must elect at least one Councillor for every parish, with a population not less than 300. Thus, while the primary duties of this body which fulfils the functions of the sanitary authority, which it supercedes, are still of a public health character, yet this only non-municipal elective body has become the chief local organ for executing the general laws, and is withal a purely democratic institution. Each Urban District is a body corporate. Every ratepayer, man or woman, can vote, though not both on the same property, but a voter need not be a property owner. Within the Act governing this thoroughly democratic body, are powers where, on an application to the Local Government Board or Board of Trade, a District Council may undertake enlarged sanitary work, gas, tramways, etc., and may further promote a private Bill in Parliament, and defend its property and rights, even to opposing a Bill in Parliament at its own expense. Each is required to have certain officers, such as a medical officer of health, a scavenger, or inspector of nuisances, clerk and treasurer.

A rather remarkable clause exists in the County Councils Act, by which half the salaries of the Medical Health Officers, and of the inspectors of nuisances may be paid out of assigned County funds, and in view of this the Local Government Board is authorized by the Public Health Act to prescribe the qualification, mode of appointment, tenure of office, duties and salary of any local officer whose salary is partly paid by Parliament. These District Councils can levy local rates.

Besides these urban districts, with their councils, there remained the rural sanitary authorities, which were really the sanitary authorities of some Poor Law District. In 1894, the radical change was made of establishing rural sanitary areas, with their district councils, elected one or more from each parish by manhood franchise, the area becoming at the same time a poor-law unit, and the councillors became ex-officio the

Poor Law Guardians. These councils carry out all the functions of a Board of Health, as applicable to rural areas, as regards nuisances, highways, waterways, and diseases. Many of them have actually undertaken the work of improving workmen's cottages, under the "Housing of the Working Classes" Act of 1900. Several of these districts may continue to appoint a medical health officer, who, however, must have proper qualifications.

We have seen the successive evolution of every board down to that of the parish.

The parish has, through the long centuries, had several meanings, e.g. (a) civil, (b) ecclesiastical, (c) poor-law, and (d) highway purposes. For long, the first two were identical, there being as many as 10,000 in England and Wales at the beginning of the 19th century, and were not only Elizabethan, but even Anglo-Saxon. They were anomalous, and have been readjusted greatly during the century, there being in 1891, 14,926 civil, and 13,789 ecclesiastical, of which only one-third were identical.

Since the Act of 1894, the civil and ecclesiastical are the same, and the highway and burial parishes have also disappeared.

In addition to the 13,083 rural parishes, there were besides in 1894, 1,803 urban, that is, within one of the urban districts. Some of these were large enough to be (1) governed by a representative body, a Parish Council, and (2) those to be governed directly by the inhabitants assembled at a parish meeting; the population being under 300. It is the old-town meeting of the Saxon times, and which has been carried to colonies across the sea. No representation but a unit for suggestion, deliberation, and action. The parish meeting must be held at least once every year, "not earlier than 6 o'clock in the evening," so laborers may attend. Seven clear days of public notice must be given, by the chairman and six electors. Questions are decided by a show of hands, or a poll if demanded. The cost is payable out of the poor rate.

Out of these grow the parish councils, where population is over 300, and its members are elected at the annual meeting in April, by a show of hands or a poll. Its functions are connected with highways, owning and managing local property, improving the status of agricultural laborers, and incidentally sanitary, dealing with ponds, drains, or other local nuisance, may control a local spring or public well, and has power to complain to the County Council that a District Council, urban or rural, has failed to do its duty; while the latter

may, if satisfied as to the complaint, order the evil to be remedied.

It must, further, have submitted to it any scheme for a charity, which it may approve of, or has a right to oppose before the High Court of Justice.

Every year, however, finds hundreds of parish councils inactive, and spending no money.

Such, then, is the evolution of local sanitary government in England, during the past century. To make this history complete, it will be proper to give a brief account of the relations of these Governments to the Local Government Board as existing at the present time, and to indicate the chief functions of the latter in matters of public health.

First, then, is the power of inspection. The officers of the Local Government Board have the right to attend the sittings of the local authorities. (2) They may institute inquiries into local health conditions and undertakings, and may take sworn testimony. (3) They may enter upon premises for purposes of investigation. (4) The local authority must report annually upon the health and sanitary conditions during the year. (5) Certain powers to all administrative sanitary areas, but only after a provisional order of Government has been made. Since 1888, however, some of these latter powers have been transferred to county councils. (6) Power to make regulations, to control epidemics by Orders-in-Council; making and issuing of medical by-laws. (7) Appointing and discussing local officials paid in part by the Treasury. (8) Power to supervise all local health by-laws before they come into force. As the activity of medical officers and sanitary inspectors is the mainspring of local sanitary work, since these are in part or wholly paid by moneys voted by Parliament they necessarily become in some degree dependent upon the Local Government. Such are most of the medical officers of urban and rural sanitary districts, and the inspectors of nuisances. Curiously enough, however, it is the local authority that first makes the appointment, and fixes its duration; but it cannot dismiss him without the consent of the Local Government Board.

It is, further, interesting to note, that, should a local sanitary authority neglect its duties, the central authority may refuse to give the county councils the certificate on which the part is paid. This proves to be a step in the hands of the central authority towards assuring good local work.

Such is a somewhat full resume of the growth of local government in Britain, during which time the public health methods of the present were developed.

In order to adequately understand just how the local governments, including their public health work, have been evolved in Ontario, we have to follow the course of events in the British American colonies, whence came the larger number of the first settlers in Upper Canada.

As has been pointed out by different writers, there were essential differences from the beginning between the New England settlements and those of Virginia, and the other Southern States, based partly on the radical tendencies of the Puritans on the one-hand, and the feudal tendencies of the Cavaliers of the southern settlements on the other. The settlements of the northern immigrants were in a rugged, rocky country, where seafaring occupations and commerce predominated, while those of the south were in an undulating country, much of it highly timbered, and readily cultivable, if labor could be had. The Indians were friendly, and the first settlers, being from the landed aristocracy of England, took up large tracts of land, and with capital enough to employ labor, and later utilized slave labor, they reproduced on American soil a semi-feudal society, made up of settlements on adjoining plantations, and hence creating county families, but giving a relatively small population to a single State. Hence, the absence of large towns made the reproduction of local government by Justices of the Quarter Sessions appointed by the State Governor the natural and satisfactory form of local government under such conditions. From early days in Massachusetts and other neighboring States, the town meeting to discuss public affairs was the inevitable accompaniment of the church meetings of a religious people, who, persecuted for their opinions, had come to a new continent to worship after their own custom. Hence we find at the time of the Revolution, that in spite of the zealous watchfulness of officers appointed by the King, whose tendencies were to repress independent action on the part of the people, as likely to develop a tendency dangerous to established institutions, there had been long in practice the annual gatherings of the settlers at what has been called "town meetings," the vestry meetings of the towns of which most had originally come from. Each of these settlements was called a town or township, governing itself, being a separate entity from the first, and found to be wholly self-dependent. Such, developing a true local self-government from the first, maintained tenaciously their local rights, when later they were united into

counties, and finally into a union of States after 1774.

The value of this local government may perhaps be appreciated by remembering that in 1620, the Pilgrim Fathers, before landing at Cape Cod, from the "Mayflower," made and signed a solemn compact, "to become a civic body politic, for its better ordering and preservation, and to enact such just and equal laws, ordinances, acts, constitutions and offices from time to time, as shall be thought most meet and convenient for the general good of the colony; unto which we all promise all due submission and obedience." Signed, Cape Cod, 11th November, 1620.

Such was the compact of the first colony landed on what was called the northern part of Virginia.

Other colonists followed, in 1629, 17 ships, with 1,500 persons, coming, one of them being John Winthrop, named first Governor of the Massachusetts Company by its directors in England, and duly elected on arrival, Governor of the colony by the freemen thereof.

The government of New England at that time was essentially a theocracy, its laws being all enacted to secure the welfare of the church of the Puritans; and no settler was allowed to come in without leave of the Governor and assistants, and must be a member of some permitted communion.

Permanent officers were chosen by the freemen, who chose the assistants, and these from among themselves chose the Governor and his Deputy. Primarily, an elective aristocracy, with no limitation of office, the second year saw introduced a rule by which at least once a year it would be lawful for the "commons" to name any person they desired to have chosen assistants, and a like course whenever they saw cause to remove one or more of the body. Hence it became the rule that the Governor, Deputy and Assistants should all be chosen annually by the whole court. A few years later it was provided that a portion of the Magistrates should be chosen for life; but this awakened jealousy, and was abandoned. There were annual or more frequent meetings of the people from the various settlements, and gradually the practice was introduced for convenience, of sending delegates to represent the freemen, completing and consolidating the commonwealth.

Early the right to levy a tax was contested by a pastor, who in defence, urged the rule that the officers had no powers other than as Mayor and Aldermen, who had no power "to make laws or raise taxes within the people." The answer was, "that the officers (assistants) were the representatives of the

freemen, and were authorized to act in their behalf." The people, not being satisfied, it was arranged that "every town choose two men to be at the next court to advise with the Governor and assistants about the raising of a public stock, so as what they should agree upon would bind all."

Hence grew up the custom that two deputies from every town should meet and consider such matters "as they were to take order in at the next general court." Through the advice of the Governor, they appointed a committee once a year to revise all laws, and determine that no assessment should be laid on the county, nor any lands disposed of, without their consent. The first annual court found twenty-four delegates taking their seats. Hence was formed the "House of Representatives," the second in America, that of Virginia being the first.

A controversy arose, resulting in the Deputies' and Assistants' Courts each having a power of veto over the acts of the other.

In 1641, one hundred laws compiled by a clergyman, were called "The Body of Liberties," based on the Pentateuch."

Apart from the fact that certain towns, as Boston, New York and Philadelphia, had grown into cities, the thirteen States which entered into the Confederation had no more local municipal development than they had a hundred years before, but throughout the whole country, talking and believing in the rights of man, and a lofty spirit of local patriotism, each to his particular colony, had grown up, which sprang from the first convention of seven colonies in 1767 to that which sat for months in 1787, and made the Constitution of the United States, and which had so expanded as to enable the fifty-five delegates to, as has been said, "create *de novo* on the most slender basis of pre-existing national institutions, a national government for a widely scattered people; but they had in doing so to respect the fears and jealousies and apparently irreconcilable interest of thirteen separate commonwealths, to all of whose Governments it was necessary to have a sphere of action wide enough to satisfy a deeply-rooted local sentiment, yet not so wide as to imperil national unity."

We have seen the stage to which local government had advanced in England in 1791, at the time when Upper Canada was formed into a Province; and when it is remembered that during ten years previous, the 10,000 who had settled on its lands were almost wholly from the United States, it is readily understood how the provisions of the Que-

bec Act of 1791, passed by the Imperial Parliament, with a view to the maintenance of British power and government in Canada, were imposed upon a people who for two hundred years had grown up in the very atmosphere of local discussion in their religious conventicles and their village politics. The Quebec Act has absolutely no provisions for local institutions, while it had provisions for dividing the Province into districts, counties, towns and townships, and for free-holders electing members of the Legislature, which was to meet annually. It was not until 1793 that the Legislature passed an Act to appoint parish and town officers. This was by instructions to any two Justices of the Quarter Sessions, the English system for five centuries, to issue their warrant to the constable to put up public notices to the people to meet on the first Monday in March of every year, to elect a clerk, assessors, a collector, two overseers of highways, acting pound-keepers as fence overseers, and later wardens for the year. Anyone refusing to act was fined 40 shillings. The Governor had already issued magistrates' commissions to military officers and permanent Loyalist settlers to preserve peace and settle minor disputes, their offices thus being at first purely legal. Some of these had, indeed, been appointed by Lord Dorchester as early as 1785, when Ontario was still a part of the Province of Quebec, and, influenced by politicians, he had further divided in 1788, the future Upper Canada settlements into districts, and appointed over them Judges, Justices of the Peace, Sheriffs, Clerks of the Peace, and Coroners. The Justices directly appointed by the Crown were in effect the only local officers, as for thirty years the powers of the local appointees of the town meeting were purely administrative, without any by-laws for their guidance, or money for executing their duties; and the minutes of the first town meetings, everywhere, show that the regulation of the height of the fences, and the kinds of animals allowed to run at large, constituted their total functions so far as law-making was concerned. Thus the first townships laid out were not in any sense units of municipal government, but served only secondarily the convenience of the land department in locating settlers. In spite of this fact, however, so possessed were the settlers from the United States with the idea of self-government, that some of the townships, as Adolphustown and Frédéricksburg, held town meetings, as their minutes prove, in the year that Upper Canada was set apart as a Province.

Governor Simcoe reported in 1792 to the Home Secretary, that "the Lower House seemed to have a stronger attachment to the elective principle in all town affairs than might be thought advisable." Again, in 1793, he states that he had succeeded in getting the Bill put off, but as to the other method, "to give the nomination altogether to the magistrates, was found to be a distasteful measure; and that many good citizens believed that fence-viewers, pound-keepers, etc., would be little obeyed, if appointed from amongst themselves."

But the absence of any powers to make by-laws robbed these town meetings of any real meaning, and for thirty and more years the Justices of the Quarter Sessions continued to be the only active factor in municipal matters.

Simcoe, to complete the idea of a colony with its State Church and its aristocracy, appointed lieutenants of counties, who would be the local representatives of the Crown, establish county families, and name the local magistrates. But the Home Government, fearing that by this the power would pass from the central authority, refused the right of recommending the magistrates to these lieutenants of counties. The practice of appointing such officers disappeared soon after his return to England. In effect, as the Crown officers in the several districts assumed their duties, and developed personal and social interests, they came to be the direct advisors of the Governor and his Executive.

We find that in 1793 the first Assessment Act was passed, the rates being fixed by the magistrates, who directed the expenditures for roads, bridges, houses of correction, coroners, destroying wolves, etc. Practically, these powers were exercised in the same way until the passage of the General Municipal Act of 1849.

After 1810 the road expenditures were directed in part by the local magistrates, and in part by special commissions appointed by the Government.

In 1801, powers to deal with special nuisances and for relief were given to the justices. In 1806 it was ordained that, should town meetings not be held to appoint the various officers for the year, the justices were to appoint these, with power to fine those who refused to act. It was not until 1816 that, after applications for twenty years, Kingston had powers granted to regulate its police, who were to regulate slaughter-houses and nuisances, oversee the street improvements, keeping cattle on streets under control, and for all this

purpose were allowed to make through the justices a special tax of £100.

Their fourteen rules, or regulations, served as guides to other towns.

In 1822 the magistrates were required to report to the Government annually. Different towns applied for special acts enabling them to elect police, but all were refused until Belleville succeeded in 1832, and this is the first step gained in local municipal government. The town was divided into two wards, each electing two members, and these electing a fifth. These elected their president, and the whole was called a Police Board; which boards here and there still exist as police villages. Other towns followed, Toronto having its first Mayor elected in 1835.

After the Union in 1840 of Upper and Lower Canada, and the establishment of elective county councils, with the warden only appointed by Government in 1841 a distinct advance was made. Baldwin introduced a Municipal Act, which passed the House in 1843, but was vetoed by the Governor; but, finally, in 1849, there succeeded municipal government, by the election of councils in cities, towns, and villages, with powers to make by-laws relating to many matters, similar to those already dealt with under the police regulations. Thus the Justice of the Quarter Sessions, as the representative of the Central Government to execute the law in local matters, disappears, and remains only as a magistrate to deal with minor legal matters.

Thus, in more than fifty years of legislation in Upper Canada, there is practically no trace of health legislation, as a matter of routine municipal work. All that we have referred to with regard to slaughter-houses, bread and meat inspection, apparently was in the direction of regulating trade by the police boards of towns.

While this unsatisfactory history of municipal health work is equally applicable to municipal work in general, public opinion was gradually forcing, even though spasmodic, the Legislature to give certain local powers to the people. The first real step is found in the Public School Act of 1816, permitting townships and village municipalities to raise a school fund to elect trustees, examine teachers' qualifications, and authorize school-books, subject to the Acts of the District Board of Education.

Fortunately, during the first forty years of the history of the Province, there is no history of any malignant epidemic; but in 1831 Asiatic cholera had appeared in Europe, and with the early summer of 1832 made its appear-

ance with the emigrants in Lower and Upper Canada. The energetic Governor of that time, Sir John Colborne,, in military fashion dealt with the emergency, and placed in the banks of the various districts a fund to the credit of the local Justices of the Peace, who, with citizens, acted as "local boards of health," to control the fund, and in every possible way to limit the spread of the scourge.

In the letter of the Governor and his Executive Council, dated, June 20th, 1832, and sent to the Chairman of the Quarter Sessions of the several districts threatened with cholera, we find it directed "that the Board," which he requests to be formed, "shall assume the authority of enforcing such arrangements as a due regard to the preservation of health may require, and places at the disposal of the magistrates in each district the sum of £500 to defray the expense of the disbursements that may become necessary for providing hospitals and medical attendance, and for making the arrangements that the Medical Board of each district, to be formed at the request of the Board of Health, may suggest." The Legislature, at its session in 1833, paid £4,439 19s. 2d. to the Governor who had personally advanced funds from his private purse. In the session of 1833, consequent upon this epidemic, we find the second general step taken in local self-government by the passing of the "Act to establish Boards of Health, and to guard against the introduction of malignant, contagious and infectious disease in this Province, and for the formation of Local Boards." Curiously, this advance is again distinct from the principle of local representation, with which the neighboring States had been so familiar, and which in the Municipal Act of 1839 in England, the County Councils Act of 1841 in Upper Canada, and the Municipal Act of 1849, gave local government by the people's representatives a real meaning.

The title and preamble of the Act were as follows: "An Act to establish Boards of Health and to guard against the introduction of malignant, contagious and infectious diseases in the Province." And the preamble: "It shall be lawful for the Governor, Lieutenant-Governor or Person administering the Government of the Province, with advice of His Executive Council from time to time, to appoint three or more persons in each and every town in this Province, and in such other places as may be deemed necessary, to act as health officers within the limits of the town or place for which they shall be appointed."

The other clauses, II., III., IV., and V., dealt with, respectively, the power to enter upon premises and into houses; to prevent overcrowding, and to abate nuisances, to regulate the entry and departure of vessels from ports in the Province, and liability to a fine for violating any provision of the Act. Section V. provides that the Act remain in force for one year. There was, however, no provision whereby funds for performing the work could be obtained. The Act was re-enacted year by year, until 1839, when, in Chap. XXI., the Act was continued and made perpetual. The Act when passed in 1835, had another clause added, giving the Boards power to remove persons from houses, when suffering from contagious diseases. The powers of the whole Act are included in Sections 75, 76 and 77 of the present Public Health Act of Ontario.

It does not appear, however, that the Governor-in-Council again issued any order under the Act for the formation of Local Boards until 1849.

There was then great fear lest the cholera, which appeared in England in 1848, should make its appearance with emigrants the next year, and in consequence the Legislature passed an Act in April, 1849, which was an amendment to the Act of 1833 and 1835, and under which the Governor by commission could appoint a Central Board of Health. It will be remembered that it was in the same year that Mr. Baldwin's Municipal Act was passed, providing for Municipal Councils, such as exist to-day. This Health Act empowers the Central Board to require the Mayor or Reeve of any municipality to call special meetings, and appoint a Local Board of Health. In addition to the power given this board to make regulations approved by the Governor in Council, the Act provided (Sec. VIII.) that while such were in force all municipal health regulations were suspended. Section VII. provided that the expenses of the Board be defrayed out of moneys granted by the Legislature for the purpose. This Act continued in force, the Central Board of Health going out of commission at the end of the year, until the cholera again appeared in 1854, when a commission, dated from Quebec, again appointed a Central Board of Health. Again in 1866, when cholera from Europe again threatened Canada, a commission from Ottawa was issued in April, and the regulations of the Board were gazetted on May 3rd. Under these different cities appointed Medical Health Officers, this being the first mention of them as such.

This Act to appoint a Central Board of Health was placed in the Consolidat-

ed Statutes of Ontario, and remained in force until 1882, when the Act for the establishment of a permanent Provincial Board of Health was passed.

Reference has been made to the Municipal Act of 1849, which gave local self-government to Ontario as it exists to-day. The powers in it to make by-laws were very wide, and the number of subjects dealt with included for the first time definite powers, as in clause LX., to make by-laws: (1) in the matter of contagious and infectious diseases, (2) regulating the interment of the dead, (3) keeping bills of mortality, (4) for imposing penalties on physicians and sextons, who neglect to make returns, and (5) for providing public cemeteries for the dead.

While public health progress was slow in Canada, it was not slower than that by which the general right of communities to make by-laws and appoint local officers to do their work was recognized. It is evident, however, that the idea was quite well developed that it was within the power and scope of Government to pass Acts to protect the public against disease. This is shown even in the Quebec Act of 1774, wherein provisions for quarantining vessels when infected or coming from infected ports were made.

Remembering that municipal institutions had existed in the British colonies, now the United States, almost from their settlement, as illustrated by the following instance, it was not difficult to understand how such would have included health powers and duties, had those settlers coming to Upper Canada not been prevented from establishing them here. Thus, in Connecticut, "An Act Providing in Cases of Sickness, was placed on the statute book in 1711, by which the select men of each town were given powers "for the better preventing the spread of infection," and this body of town officers continued to be practically the Board of Health, until

1872, when the first City Board of Health was appointed for New Haven, and especially set apart to attend only to public health matters.

Perhaps, therefore, we may say, after this review of the history of municipal and public health evolution in Great Britain, the United States and Canada, that public health work as a department of government, whether central or municipal, was rather improved by the two streams of influence, one centralizing, as where the Governor-in-Council had powers, on the one hand, to establish local health committees, which were required to execute certain well-defined regulations, apart from the mere local ideals which any municipality might hold regarding its own interests or those of the Province at large, and where, as is seen in most States of the Union even to-day, municipalities have powers to exercise or neglect to exercise the health powers which they possess, while the general governments do not usually exercise more than advisory powers. The Acts of Ontario to-day combine in essence municipal freedom of action, with central powers to enforce local health laws, where the local Boards of Health fail in their duties. An examination of the evolution of the County Councils Acts in England of 1888 and 1894 similarly shows such¹ combined executive powers; and, judging from the results obtained in England and in Canada, where Ontario laws have been largely followed in the different Provinces, there is the happy co-ordination of that municipal duty and individual responsibility, with the advice and support of the Central Government, which makes for the highest development of freedom, with an acute sense of patriotism and responsibility, not to the individual alone, but to the people as a whole. The balance of central and municipal powers in public health matters seems to admirably illustrate, by the results attained, the truth of the proverb: *In mediâ tutissimè ibi.*

CHAPTER II.

ANNUAL REPORT OF MEDICAL INSPECTOR.

Chas. A. Hodgetts, M.D.

To the Chairman and Members of the Provincial Board of Health:

Gentlemen,—I beg to submit my second annual report, as Medical Inspector of the Board, for the year ending December 31st, 1903.

The general prevalence of contagious diseases has called for about the same amount of inspection work as the preceding year, and it is gratifying to state that the local Health authorities of the municipalities into which my duties called me, have generally expressed themselves as pleased with a visit from an official of this Board, as thereby any subsequent action taken in carrying out the Health Act and the several regulations of the Board were much less subject to public criticism than they otherwise would have been, and the orders of the local Board were more efficiently carried out.

The returns for the contagious diseases—smallpox, scarlatina and diphtheria—for the year are as follows:

	Smallpox.	Scarlet fever.	Diphtheria.	Typhoid.
January	196	500	510	65
February	152	550	200	60
March	175	515	228	60
April	122	295	203	57
May	66	391	205	48
June	30	297	191	47
July	29	187	209	47
August	15	103	122	115
September	10	100	240	111
October	7	232	541	178
November	5	276	476	109
December	13	231	474	120
Total	820	3,677	3,599	1,012

Comparing these returns with those of 1902, which are somewhat imperfect owing to there being no monthly returns required from Local Boards of Health:

	Smallpox.	Scarlatina.	Diphtheria.
1902 ...	2,797	3,452	2,696
1903 ...	820	3,677	3,599

It will be observed that there has been a marked decrease in the number of smallpox cases, there having been reported nearly two thousand cases less than in the preceding year; with the decrease there has been an increase in the death rate.

The disease was most prevalent in the month of January, and gradually decreased month by month until only 5 cases were reported in the month of November, December showing a slight increase, owing chiefly to infected persons returning to North Dakota, where the disease is more or less epidemic, and also to the fact that the disease had been pursuing an insidious course in the neighborhood of Roblin Village, in the Township of Richmond.

As indicating the number of municipalities in which smallpox was epidemic during the year, the following table is submitted:

Municipalities Reporting Smallpox During 1903—by Months.

	Cities.	Towns and Villages.	Townships.
January	4	12	28
February	12	6	13
March	1	6	12
April	1	4	11
May	1	1	9
June	2	1	4
July	1	1	2
August	1	1	1
September	1	1	1
October	1	1	1
November	1	1	1
December	1	1	4
Total	11	34	87

From this it will be seen that the disease occurred in 132 municipalities. In this table no reference is made to more than one outbreak during the year, although in a few instances second cases were reported, having a different origin to the first.

The most severe outbreak that occurred, happened in the Town of Galt, some 86 cases, with 8 deaths, being recorded; and the following extracts from letters received from Dr. Wardlaw, the then M.H.O., describe the situation. Writing January 2nd, 1903, he says: "We have ten families under quarantine; five of these are convalescing, the other five have only one case in each family. The cases, with the exception of one, have been extremely mild, some having only a few spots on arms. * * * The first cases of this outbreak were reported December 19th, 1902. Since then we have had the others. * * * On report of outbreak we immediately put on special san-

itary officers, placarded houses, and vaccinated all persons in infected houses. * * * At present we are having trouble maintaining strict quarantine. Vaccination is being freely carried on, although the Board of Health was not in favor of compulsory vaccination."

After the erection of an isolation hospital and removal of all cases thereto, the doctor writes on January the 31st: "The situation has very greatly improved. The patients (13) in cottage are all convalescing nicely"; and, writing April 10th, after everything had been cleaned up, he says: "Our expenses were over \$11,000.00. No doubt the key of the position is the having of a cottage ready for immediate use by every municipality." The townships which suffered the worst from the disease were: Wilmot, 33 cases and 1 death; South Easthope, 17 cases and 1 death; and Zone, 13 cases, no death.

With the continuance of the disease for several years, there has naturally been acquired by physicians a greater care in noticing the clinical features of smallpox, but errors have been frequent, chiefly owing to the fact that individual cases have not been closely observed for a sufficient length of time to permit of the development of the eruption; for instance, the maturation of the visicle has been expected too soon, or a careful study of the eruption as it appears on the whole body has not been made. In other cases an aborting of the eruption at either the papular or vesicular stage, or at both, in some portion or other of the body, has added to the difficulties in diagnosis. Experience has demonstrated the fact that smallpox, as it has existed for some years past, is capable of aborting at any and every stage of the disease, in the unvaccinated, just as smallpox in vaccinated subjects may present every modification. It may be prevented altogether, may abort at the febrile stage, at the macular, papular, vesicular and

pustular, and so in the unvaccinated the disease may present every one of these modifications. The specific infection of variola runs through them all, and in following out a series of cases, some will be observed which present the disease in a form which satisfies the most ardent book student of medicine.

The marked benefits arising from the enforcement of the Regulations for the Sanitary Control of Unorganized Districts, approved May 30th, 1901, were referred to in last year's report, more particularly in their relationship to the suppression of smallpox in New Ontario. As the introduction of these regulations brought about changes, and introduced methods, which in themselves were as radical as they were beneficial, it was only to be expected that there would be some opposition from both the employers and employees. I am pleased to report, however, that the objections have been as few as the objectors have been numerically small. There seems to have been a misunderstanding on the part of the employers of labor as to the exact meaning of the regulations, as to employment from year to year of a medical man for the purpose of giving medical attendance to all employees other than simply for contagious diseases, and also for the sanitary monthly inspection of the camp premises, with the providing of hospital accommodation. In many instances the employers were simply contracting for the monthly inspection of the camps, and charging the cost of same against their employees, without furnishing medical attendance and hospital. To further simplify matters, Regulation 12 was amended by an Order-in-Council, approved August 11th, 1903, as follows:

"Employers of labor on all works in such districts shall transmit, at the time of the contract, to the Secretary of the Provincial Board of Health, the name or names of the physician or physicians employed by them under the

LIST OF FIRMS.

No.	Name and Address of Company.	Physician.	Address.
1	A. B. Gordon & Co., Sudbury	Dr. Struthers.....	Sudbury.
2	Turner Bros., Washburnshene.....	Dr. Howie.....	"
3	Cockburn Bros., Sturgeon Falls.....	Dr. Bolster.....	Sturgeon Falls.
4	Barton Bros., Barrie.....	Dr. McRae.....	Soo.
5	John B. Smith & Sons, Collingwood.....	Dr. Carruthers.....	North Bay.
6	The M. Brennan & Sons Mfg. Co., Ltd., Hamilton.....		
7	The Canadian Construction Co., Ltd., Sudbury.....	Dr. Howland.....	Huntsville.
8	The Turner Lumber Co., Midland.....	Drs. Struthers and Arthur.....	Sudbury.
		Dr. Harcourt.....	Trout Creek.
		Dr. Douglas M. Gray.....	
9	C. Beck Mfg. Co., Ltd., Penetanguishene.....	Drs. Struthers and Arthur.....	Sudbury.
10	Huntsville Lumber Co., Huntsville.....	Dr. Howland.....	Huntsville.
11	J. & J. Conlon, Little Current.....	Dr. McDonald.....	Little Current.
12	McLachlin Bros., Arnprior.....	Dr. Cranston, Jr.....	Arnprior.
13	Lake Superior Timber Co., Port Arthur.....	Dr. J. B. Reid.....	In Camp.
14	A. D. Spence, Powassan.....	Dr. A. S. Porter.....	Powassan.
15	The Rat Portage Lumber Co., Rat Portage.....	Dr. S. J. Farrell.....	Rat Portage.
16	The Ontario Lumber Co., Toronto.....	Dr. Harcourt.....	Trout Creek.
		Dr. Struthers.....	Sudbury.

LIST OF FIRMS, etc.—Continued.

No.	Name and Address of Company.	Physician.	Address.
17	The Imperial Paper Mills of Canada, Sturgeon Falls	Dr. Greenway	In Camp.
18	The Georgian Bay Lumber Co., Blind River	Dr. Burd	Blind River.
19	The Conger Lumber Co., Parry Sound	Dr. A. M. Burgess	Bala.
20	The Cleveland-Sarnia Saw Mills Co., Sarnia	Dr. J. R. Stone	Parry Sound.
21	Loveland & Stone, Cartier	Dr. Howie	Sudbury.
22	Estate of Edmund Hall, Nairn Centre	Dr. Howie	Nairn Centre.
23	Moore & Macdonald	Dr. Burd	Blind River.
24	Claridge & Hillick, South River	Dr. Harcourt	Trout Creek.
25	Austin & Nicholson, Chapleau	Dr. Merrill	Chapleau.
26	W. & A. McArthur Co., Collins Inlet	Dr. M. H. Langs	Langford.
27	Trussler Bros., Trout Creek	Dr. Harcourt	Chelmsford.
28	The Morgan Lumber Co., Chelmsford	Dr. Shaw	Chelmsford.
29	Saginaw Lumber & Silt Co., Chelmsford	Dr. Shaw	Chelmsford.
30	The McGillivray Company	Dr. Stone	Parry Sound.
31	Lowe & Cameron	Dr. E. Jones	Webbwood.
32	Messrs. Gilles Bros., Ericside	Dr. Smith	Haileybury.
33	David sword, Chelmsford	Dr. W. H. Scott	
34	The Carney Lumber Co., Massey	Dr. G. F. Jones	Webbwood.
35	James McCreary, Larchwood	Dr. Shaw	Chelmsford.
36	The Croft Lumber Co., Ltd., Ahmic Harbor	Dr. J. S. Freeborn	Magnetawan.
37	Joseph Derry, Rat Portage	Dr. Edmison and Laidlaw	Rat Portage.

Act, and of any subsequent change made in their physicians and of the contracts between the two contracting parties.

"Should it appear to the Provincial Board of Health, owing to the distance of the residence of the physician employed from the camps of the company, that the best interests of the employees are not likely to be served, it shall be competent for said Provincial Board of Health, with the approval of the Minister of the Department, to require any employer of labor in such districts to contract with some physician residing at or near the works of the company.

"Should it further at any time appear, owing to the distance of the physician from the camps or to neglect or other cause in the part of the company or physician employed, that employees have been put to expense to secure medical assistance for sickness or accident other than of the company's physician, the employer and physician shall be held responsible for the payment of a reasonable fee for such medical services, the amount to be paid in such instances to be determined in case of dispute by the Minister of the Department, under Section III. of the Act, Chapter 34, 1 Edward VII."

As a result of the Regulations, many thousands of shantymen and miners working in the unorganized portions of this Province are receiving medical aid, and the companies provide hospital accommodation. The camp premises are kept in a better sanitary condition, and the new camps constructed are following the lines suggested by the Board. The benefits accruing to the men themselves, the general travelling public, the railway officials, and companies, as well as the inhabitants of the older portions of the Province by these pre-

ventive measures, are of incalculable value, and their possibilities have been demonstrated by the complete eradication of smallpox in these outlying districts. The work has been done at a very small cost to the Province.

As an indication of how the work is being carried out, without any undue pressure being placed upon the employers of labor, I append a list of some of the firms who have complied with the regulations, giving the name of the medical man with whom they have contracted, together with the location of the camps.

To further illustrate the fact that many of the companies are finding it better to contract with a physician who will reside at the headquarters of the company, thereby securing to their employees that medical first aid which they so much desire, and for which they are most willing to pay, I append the following extracts:

"We have about 120 employees, and we feel the benefit of their attendance in better health and general satisfaction."

"We beg to advise you that Dr. Jas. B. Reid is our camp physician, and resides permanently at camp No. 1. He will have about 300 men to look after this winter, and none will be more than seven or eight miles from his headquarters."

"Would state that this company is complying in every respect with the Act, and we have had at our camps a resident physician."

"We have a hospital at the headquarters camp on the limit, and there is a resident doctor there, who visits the camps regularly, and spends all his time on the works."

"We have contracted with Dr. M. H.

Langs, who is now stationed here, to visit each of our camps at least twice each week, he to supply all medicines, bandages, etc., also any medical attendance required. . . . Each camp is supplied with hospital, pest house, and good outbuildings, the hospital being provided with every convenience that can readily be provided in such a back-wood place."

"Dr. Harcourt of South River personally looks after our four camps in the Township of Paxton, and his assistant, Dr. Burns, remains in the vicinity of our seven camps in the Townships of Nelson, Fernie and Brown."

And, further, I append as samples of the contracts entered into by the following medical men. A comparison of these contracts shows how the different wants of the shantymen can be met in regard to medical attendance, and yet the contracts satisfy the requirements of the Act.

Huntsville, Ont., Aug. 14th, 1903.

The Huntsville Lumber Co., Huntsville, Ont. :

Dear Sirs,—Re medical inspection of camps. We agree to visit your camps as per Government regulations, and vaccinate all employees, and to give our hospital advantages to all your employees, excepting those suffering from contagious diseases, to which we will give medical attendance at your camps. You to collect and pay us fifty cents per employee per month for all employees not holding our hospital tickets. We will supply the men with medicines as required.

(Sgd.) F. L. HOWLAND, M.D.,

Med. Supt. Gen. Hos., Huntsville.

Accepted. Huntsville Lumber Company, Limited. W. Turnbull, Secretary.

Agreement, made this 5th day of October, A.D., 1903, between The Turner Lumber Company, Limited, of Midland, Ontario, and Dr. Douglas M. Gray, of Larchwood, Ontario.

Witnesseth: That Dr. Douglas M. Gray hereby agrees, personally, to visit the various camps of the said company in the Township of Till at least twice in every month, beginning the 1st day of October, 1903, and continuing until the breaking up of the camps at the close of the season's operations in the spring of 1904, for the purpose of inspecting the sanitary condition of said camps, and reporting to the proper authorities, as required by the statutes regulating such matters. He also agrees to attend all cases of sickness occurring among the men employed by said company, to vaccinate such men as may require the same, as prescribed by the regulations governing lumber camps, and

to prescribe for and treat any cases requiring medical attendance or surgical attendance among the employees of said company, except those hereinafter mentioned.

In consideration whereof the said Turner Lumber Company, Limited, agrees to pay to said Dr. Douglas M. Gray the sum of fifty cents (50 cts.) per month for each man employed in their camps during the season, provided the employee has earned fifty cents (50 cts.) over the amount which may have been advanced by said company to pay said employee's transportation and expenses to camp, his rate of wages being for this purpose \$1 per day for each day's work in camp, payments to be made on the 10th of each month for the previous month.

Calls to camps, additional to the regular monthly visits, must have the endorsement of the foreman of the camp from which the call is made.

Men coming to the office at Larchwood for medicine and treatment must bring with them an order for same from the foreman of their respective camps, or they will be required to pay the regular office fee.

Men suffering from venereal diseases will be charged the regular fee for such cases over and above the fees charged at the camps. In virtue whereof the parties hereto have executed these presents.

(Sgd.) The Turner Lumber Company, Limited.

DWIGHT J. TURNER,
Vice-President.

DOUGLAS W. GRAY, M.D.

Agreement made this 14th day of September, A.D. 1903, between Trussler Bros., Limited, of Trout Creek, Ontario, and Dr. G. V. Harcourt, of South River, Ontario.

Witnesseth: That Dr. G. V. Harcourt hereby agrees, either personally or by a duly qualified assistant, to visit the camp of the said company in the Township of Gurd, at least once in every month, beginning the 1st day of October, 1903, and continuing until the breaking up of the aforesaid camp, for the purpose of inspecting the sanitary condition of said camp, and reporting to the proper authorities, as required by the statutes regulating such matters. He also agrees to attend all cases of sickness occurring among the men employed by said company, to vaccinate such men as may require the same, as prescribed by the regulations governing lumber camps, and to prescribe for and treat any cases requiring medical attendance or surgical attendance among the employees of said company except those hereinafter mentioned.

In consideration whereof the said Trussler Bros., Limited, agrees to pay to the said Dr. G. V. Harcourt the sum of fifty cents per month for each man employed in the camp during the season, payment to be made on the tenth of each month for the previous month.

Calls to camp additional to the regular monthly visit must have the endorsement of the foreman. Men coming to the office at Trout Creek for medicines or treatment must bring with them an order for same from the foreman, or they will be required to pay the regular office fee.

Men suffering from venereal disease will be charged the regular fee for such cases over and above the fees charged at the camp.

In virtue whereof the parties hereto have executed these presents.

TRUSSLER BROS., Limited,
G. TRUSSLER, President.
J. H. LEDDER, Treasurer.
G. V. HARCOURT.

Copy of agreement between Dr. G. W. Smith and J. A. Gillies for medical attendance at Henderson's Camp, Bay Lake, in Montreal River Locality :

1. I will agree to visit Henderson's Camp, Bay Lake, at least once every month, and in addition,

2. To answer any emergency calls, such as might be occasioned by serious illness or serious accident.

3. To supply medicines and surgical dressings required, but if an outbreak of diphtheria occur, I do not agree to supply anti-toxine at my own expense.

In return for the above to receive as follows :

1. Fifty cents per month for each man employed.

2. Twenty-five cents for each vaccination.

3. In case an outbreak occur of any of the diseases required by law to be isolated, and it is necessary to make frequent visits to such patients, that I receive an additional remuneration of \$5 for each visit, but if arrangements can be made to isolate the patients in a building or a double-walled tent near to Haileybury, I would not expect any extra charge.

My obligations towards the men to cease when they leave your employ.

(Signed) G. W. SMITH.

Ville Marie, Que., Oct. 31st, 1903.

During the year there were three outbreaks of infectious disease, for which the Province was liable, viz.:

Wa Wa City (smallpox).

Township of Neebing (smallpox).

Township of Mather (diphtheria).

And the details are briefly :

Wa Wa.—A settler had gone to St. Anne, Que, on a pilgrimage, and contracted the disease while visiting friends near Montreal. On his return home he was taken ill, and the disease spread to several others. Owing to the isolated position of the patients in the fall of the year, Dr. Anderson was placed in charge of the outbreak. The total expenditure was \$1,037.45.

Township of Neebing.—A newly-arrived settler from one of the New England States developed the disease shortly after his arrival in an adjoining unorganized township, and, feeling ill, he went to Stanley, a settlement in this township, where he was quarantined by the local authorities and cared for by them. The expenses, for which this Board was liable, were \$389.17.

Township Mather, Rainy River District.—In December, 1903, diphtheria broke out in the family of a settler, some 18 miles from Barwick, and the local health authorities of Chapple took charge of the case. The expenses, including cost of anti-toxin, were \$178.25.

The only outbreak of smallpox occurring in a camp during the year was that reported in those of the Spanish Mills Pulp Company, at Biscotasing, in the month of December last. Two cases from this camp arrived at Sudbury, and were there detained at the company's expense.

Special reports are appended on The smallpox outbreak in Essex County, The inspection of the constructed camps on the Temiskaming Railroad, on The outbreaks of scarlet fever in Port Hope and Rodney, on Diphtheria in Darlington Township, on The tannery nuisance at Elgin Mills, in York County, and on The tent wards at the Western Hospital, Toronto.

All of which is respectfully submitted.

CHAS. A. HODGETTS,

Medical Inspector.

CHAPTER III.

REPORT OF JOHN A. AMYOT, M.D., BACTERIOLOGIST OF THE BOARD.

The work of the laboratories consists of routine examinations for the diagnosis of tuberculosis, typhoid fever, malaria, and influenza, rabies, anthrax, actinomycosis, glanders, tuberculosis in animals, for diagnosis and release in diphtheria, for the bacteriological and chemical examinations of suspected waters, the examination of sewages, and the investigation of diseases in general, or whatever might affect public health. These investigations are usually carried on in the laboratories, but when occasion demands it, facilities are provided at the seat of trouble for whatever examination or investigations are needed. In 1902 a section of the laboratory was moved to Berlin, Ont., and remained there for six months, carrying on experiments looking to the elucidation of the sewage disposal problems of that town.

The examination of the specimens is done gratis, for the purpose of promoting the work of the Local Boards of Health, and to this end it is desirable that, as far as possible, they be sent through such channels. Often this would cause delay, and so vitiate the examinations and frustrate their usefulness. To avoid this, specimens are in most cases received directly from physicians and veterinarians. The reports thereon are sent by mail, or, when requested, by telegram, in the last case at the receiver's cost. In the case of reports on diphtheria diagnosis telegrams are always sent unless otherwise requested.

Samples may be sent by mail or express, and must be prepaid. Samples sent by post must comply with the regulations of the Post Office Department. These are that diseased tissue be carefully enclosed in specially constructed double tin cases, closely packed with absorbent matter, and with closely fitting screw caps. They then, when addressed to the Provincial Boards of Health or to Public Laboratories, pass at fifth-class rate. An endeavor is being made by the American Public Health Association to have such matter pass at letter rate in Mexico, United States and Canada; also to have a modification of the packing regulations. At the present time senders labor under considerable unnecessary difficulty. And yet some are extremely careless, and send specimens without taking even common precautions (a swab in an envelope). Such persons are liable before the law, and thoughtlessly careless of the public health. Besides, such specimens are subject to contamination. They are simply

destroyed if the postoffice authorities have not already done it.

Senders of specimens should observe certain rules in forwarding them:

1. Always to address them to the Laboratories of the Provincial Board of Health, Toronto.

2. Always to enclose with specimens their own names and addresses. Letters or cards and specimens often become separated in transit. We have several reports here now awaiting addresses to send them to.

3. The data-cards for specimens of sputa, exudate, blood and waters are to be filled out as much as possible in full. These are intended for statistical purposes. It has been decided not to send reports unless these cards are filled out. Of course, it can quite be understood that the data should be accurately given. These cards have been sent to all the physicians of the Province. More are sent on request. It is desirable that all results be reported to the Local Boards of Health.

4. In the case of samples of suspected tuberculosis sputa the morning material (not more than half an ounce) should be put in a clean, wide-mouthed bottle, provided with a well-fitting cork stopper. Nearly all screw-tops leak, giving rise to a good deal of danger in the handling of the specimen. When a positive result is once obtained no further examination will be made free of charge. When a negative result is obtained repeated samples will be examined until the physician is satisfied that tuberculosis is absent.

5. Samples of suspected diphtheria exudate, or specimens from convalescent cases, to determine the absence of the diphtheria bacilli, should be taken on sterile swabs, and for release from quarantine it is advised that swabs be taken from the nose as well as the throat. These swabs may easily be made by wrapping a little non-absorbent cotton (jeweler's cotton best) about the end of a stick or a piece of wire, preferably copper or aluminum wire, the cotton end need not be more than one half inch in length and a sixth of an inch thick. The swab should be sterilized along with the container, before smearing. This can be easily done in an ordinary cook-stove oven by the dry heat there in one hour's exposure, with the door of the oven closed. The fingers of the practitioner, as well as the cotton, might, independently of the patient, carry the bacilli.

6. Samples of suspected typhoid blood may be sent by letter, by allowing a few drops of blood to dry on a piece of clean, glazed writing-paper, preferably on a small piece of clean glass.

7. In the case of suspected rabies in dogs it is necessary that a portion of the spinal cord and medulla of the dog or animal be forwarded with as little delay as possible, taken from the animal immediately after its death, all under aseptic precautions, and this enclosed in a sterilized bottle, and the bottle packed in ice and sawdust.

8. In the case of suspected actinomycosis a small portion of the diseased tissue may be placed in a sterile bottle and packed in ice.

9. In the case of other contagious diseases of animals it is necessary that small portions of the spleen and liver or intestines and any portion showing lesion, be removed with antiseptic precautions, enclosed in separate sterilized bottles, and the bottles packed in ice and sawdust. All precautions should be taken in these cases, especially in suspected anthrax and glanders, that there be no possibility of leakage, on account of the danger of spreading the disease. One drop of the blood of an anthrax animal is sufficient to spread the disease widely.

10. Malarial blood for examination should be spread thinly on a cover-glass or slide, with as little handling as possible, so as not to crush the blood corpuscles, and allowed to dry in the air before packing in a tin box.

11. In the case of influenza, swabs may be taken in the same way as the swabs in diphtheria are taken, and with the same precautions.

12. Water Samples. The following regulations have been formulated by the Board in reference to whom examination will be made free and for a fee. To the Local Board of Health :

Dear Sirs,—The equipment of the Laboratory of the Provincial Board of Health having been lately added to, facilities for the wider examination of municipal water supplies and proposed public supplies, and those waters, from whatever source, suspected of being the cause of disease, etc., are now provided for.

The following are entitled to the privileges of this Department of the Laboratory gratis :

1. Municipalities proposing the installation of public water supplies, or having reason to suspect present supplies, with investigation made, provided the samples are sent through the Medical Health Officer or Secretary of the Local Board of Health, and according to the form of instruction sent out by the Provincial Board of Health, the samples

collected by any person appointed by the Local Board of Health. When necessary, an officer of the Provincial Board of Health, is at the call of the municipality to investigate conditions and collect samples provided the expenses entailed, other than those of the analyses, are paid by the municipality.

2. Medical Health Officers having reason to suspect any source of drinking water to be the cause of disease, provided they have the samples collected and forwarded according to instructions sent out by the Provincial Board of Health.

The following may have samples of water analyzed on the payment of \$5 for each sample, or \$4 each when more than one is sent at a time, if collected and forwarded according to the form of instructions sent out by the Provincial Board of Health :

1. Such persons as are desirous of assuring themselves of the potability of their well water, or private source or a proposed one.

2. Such persons as have reason to suspect the purity of their well or private source.

3. Other private parties, as physicians, engineers, etc., wishing analyses for some sufficient reason.

In all cases where possible, application should be made to the Secretary of the Provincial Board of Health when special bottles will be expressed for the purpose of collecting samples, along with instructions for collecting the same.

I have the honor to be,

Your obedient servant.

C. A. HODGETTS,
Secretary.

Also, the following instructions should be followed in collecting water samples :

Instructions for Taking Samples of Water for Chemical and Bacterial Analysis.

1. The bottle provided having been rendered as nearly chemically and bacterially clean as is possible, the part of the stopper entering the neck of the bottle should not be allowed to touch anything whilst filling is being done, nor should it be removed until the filling is to be done, nor should any sealing-wax, etc., be applied to stopper after filling.

2. A piece of heavy cotton for chemical, a piece of rubber-dam for bacterial, and an elastic band are provided to tie the stopper down with.

3. The bottles should be carefully rinsed out with the water once or twice, then filled, and the stopper firmly placed in the bottle and tied down as indicated above.

4. When the sample is taken for bacteriological purposes it should be packed in ice to insure the stoppage of the growth of bacteria until the laboratory is reached. Each bottle should be completely surrounded by pounded ice, with no sawdust intervening, the whole to be surrounded by a piece of cotton cloth. Arrange each sample separately in this manner, and then must be packed in sawdust, having bits of ice scattered through it, in order to keep the temperature of the water near the freezing point. The box should be comparatively large. When the sample is for chemical analysis only, packing in sawdust only is necessary.

5. The box should be forwarded, prepaid, by express, to the laboratory with as little delay as possible in order that its contents do not change their composition. Samples should not be sent on Saturday, nor reach the laboratory on that day.

6. The "data-card" and "designation-card" should be carefully and fully filled in. The data are for supplying material to interpret the results of analysis by as well as for statistical purposes.

7. It has been decided that specimens will not be examined until these data are given.

8. The box should be addressed as follows:

DR. JOHN A. AMYOT,

Laboratory of the Provincial Board of Health, Toronto.

The examination of urine, of blood, (except Widal reaction) stomach contents, faeces, tumors, and other tissues, for clinical purposes, and is not directly in the interest of public health and is not a part of the work of the laboratories under the Public Health Act, and therefore, should any be sent to the Provincial Laboratories, they will be turned over to some pathologist for examination, when a fee will be charged.

The laboratories are open every day from 9 a.m. to 5 p.m., except on Saturdays and holidays, when they are open until 1 p.m.

Three mails are received daily, 9 a.m., 12 m., and 4 p.m.

Diphtheria Diagnosis.—No outfits are sent to practitioners for the forwarding of swabs. Ontario is a large Province, and in the outlying districts medical officers are widely scattered. Swabs are accordingly received after the device of each sender. It is very rarely that a sterile swab is received. On the whole, and so far as diphtheria is concerned, the results have been satisfactory. Some of the specimens, not being packed according to post office regulations, have been detained in dead letter department, but have, even after two or three weeks,

shown in most cases fair growth, when complete drying out has not taken place. On one occasion, after two months' detention, a good growth of diphtheria bacilli was got. Some practitioners, in making up swabs, have used cedar wood. We have found when these were delayed a couple of days the bacilli was almost invariably killed out (volatile oil of cedar?) We have not made it a habit to make a direct swab examination on receipt of specimen, preferring rather to incubate after smearing a blood serum medium. The cultures are incubated as soon as possible after receipt. The examination is made the first thing on the following morning, and reports sent; the cases for diagnosis by telegram, if for release, unless otherwise requested, by mail. Cards are sent for both release and diagnosis reports as well. Telegrams are sent at the physician's expense. We trust to the morphology entirely for the recognition of the bacilli; keeping in mind always that these organisms found are not at all times necessarily virulent to the patient immediately concerned. The ideal method would be to test the virulence, but this is a process requiring considerable time, and would be entirely out of the question for practical everyday work. Organisms, non-virulent in one subject may become very virulent to the next. The purposes of public health are secured by the finding of the bacillus or not. When the result is positive, that is, shows the bacilli of diphtheria, the patient is isolated. The patient is dangerous to those about him until he is free from the bacilli, though they may be showing no reaction at all with their host. Many municipalities now require a negative result, or absence of the bacilli, before raising quarantine. Where this rule has been in force it has proved very satisfactory in limiting the prevalence of diphtheria. In this Province one negative has been considered sufficient for release. Hill, of Bolton, quotes statistics showing that, after one negative, 30 per cent. of the total positive persons go out of isolation with bacilli still present. On this account there is a growing feeling amongst health officers that two consecutive negative cultures should be required. The same authority quotes results which go to show that when this is required only from 1 to 3 per cent. are released still infective. A normal looking throat may harbor the bacilli for a long time. Such a case might, if let go, spread diphtheria very widely. Some years ago a patient was let go from one of the city hospitals, he being thought to be free from infective ba-

cilli. He became the centre for 25 cases in a district where diphtheria had not previously existed.

Some diphtheria cases fail to show the bacilli of diphtheria sometimes even after several searches. This is rare. The bacilli are found in 80 per cent. at the first culture if the swab be carefully taken, and no harmful agent comes in contact with the bacilli on their journey to the culture tube from the patient's throat.

Typhoid Fever.—Examinations of blood by the "Widal Reaction" are made for the diagnosis of typhoid fever. The physicians send a drop or two of blood dried on glazed paper. For the examination a sufficient quantity of sterilized water to make a decided amber color is placed on the blood. This quantity corresponds as closely as practicable under the circumstances to a dilution of one in ten. A loopful of this mixed with a loopful of a 24 hours' growth of typhoid bacilli, in nutrient broth, from an agar growth of one month old, gives a dilution of one in twenty, the dilution ordinarily admitted, to the best under practical laboratory conditions. A hanging drop is then made, an hour being allowed for the completion of the reaction. Reactions often take place much quicker (10 minutes even). A typical reaction is where there is a decided clumping of the bacilli, with, at the same time, a stoppage of the mobility of the bacilli. Sometimes clumping, sometimes stoppage of motility alone is observed. Such a reaction is not typical, merely suspicious, and in these cases request is made for other samples if symptoms should still continue. If neither takes place there is no reaction. A positive reaction is conclusive evidence of typhoid to the extent of 95 per cent. All typhoid cases do not show the reactions; fully 90 per cent. do, though, at some one time or another during the course of the disease. One case during the last year showed it typically on the twenty-sixth day, though the test had been made on several times previously to this day with negative results. The reaction at times is got for weeks, and even months, after an attack of typhoid fever. Rarely during a second attack of the fever. In 5 per cent. of the cases proving positive the disease is not typhoid. The personal element in pronouncing on the reaction is accountable for some of this 5 per cent., the rest is difficult to account. With all its faults, the Widal reaction for typhoid fever is an extremely valuable, though not

a positive, evidence of its presence. To insure a continued run of one month old cultures a new agar smear is made each night and kept in the refrigerator for the next month's work. The reaction of both the broth and the agar used is plus 5 to phenolphthalein. This reaction has seemed to give us the best results in making this test.

Tuberculosis.—Under this heading sputa from cases suffering from respiratory tuberculosis, discharges from lesions suspected of being tuberculous, urine from urinary cases, tissues from animals suspected of having died from this disease, where the meat is exposed for sale as food, are sent to the laboratories. The staining method is the one chiefly used in making the diagnosis. The staining is done on glass slides, no cover-glasses being used. In the case of sputum the habit is to take four loopsful from four of the most suspicious looking portions of the specimen, the same in the case of discharges from other lesions. Second slides are not made. The four loopsful correspond to four slides. It has been found by Hill that the bacilli were found in second slides in only about 1 per cent. of double examinations, and our own observations go to substantiate this. In the case of urine a preparatory centrifuging at high velocity is done before taking the four loopsful. This is stained by the ordinary carbol fuchsin stain, and decolorized by a solution containing three parts of HCl in 97 parts of 95 per cent. alcohol, counterstaining in methylene blue. If none appear another sample is requested. In the case of discharge from other lesions than pulmonary, or from urine, in which the bacilli are not found, and it is often difficult to find them in these cases, if other pathogenic organisms are not present in too large numbers the guinea pig is had recourse to. In the case of tissue microscopic sections are made by the freezing method, and search made for the lesions so nearly characteristic of tuberculosis. The meat is condemned if the lesions or the bacilli are found.

Malaria.—We have very little indeed of this disease in Ontario. Many practitioners who have practised for years not meeting a single case. For its diagnosis staining of cover-glass smears of blood is made. Fletcher's modified method is still used as follows:—Fixation in 25—5 per cent., formaldehyde in 90 per cent. alcohol, staining in carbol-thionin (50 per cent. al-

coholic solution of thionin 20 c.c., 2 per cent. carbolic acid solution in water 100 c.c.), for 10 to 15 minutes, wash in water, dry and mount. It has given us good results.

Glanders.—None has been met with during the year. It is fortunately a very rare disease in Ontario. The method employed for its diagnosis is that recommended by Hill (Twenty-eighth Annual Report, Boston City), viz.: "Take a swab of absorbent cotton from the suspected mucous membrane or lesion of the animal, so as to get as much of the suspected material as possible. This on receipt is shaken thoroughly in 5 c.c. of sterile water." The resulting suspension is injected into the peritoneal cavity of a male guinea pig or tom cat. A positive or a negative diagnosis is usually based upon the development or non-development of scrotal adhesive inflammation in from two to seven days, after further examination of the tissues in every case for the isolation of the organism. The lesions in the testes of the animal in a typical case are typical pin-head pussy pearls. The guinea-pigs frequently die from sepsis before the typical lesions have had time to develop from mixed infection, and then requiring a repetition of the inoculation. Cultures and smears should be made, of course, from the original material.

Rabies.—No specimens have been reported in the Province during this past year. The method employed in the diagnosis of this disease is to make an emulsion of about a gramme of the spinal cord or brain of the suspected animal in 10 c.c. of sterilized water, taking all precautions to prevent as much as possible any chance of mixed infection. This emulsion is filtered through cotton and afterwards paper, and injected subdurally into the cranium of a healthy rabbit. The dura is exposed by trephining a full grown rabbit at a point just posterior to a line joining the centres of the eyes. The diagnosis is made on the appearance of paralysis or convulsions, after fourteen days, if other diseases can be excluded by the autopsy and cultures from the organs and blood. Certain rabietic tubercles are very suggestive in examining sections of the cord brain and ganglia. Two animals at least should be used, on account of accidents from injury and mixed infections. In the meantime if the original specimens have arrived in a good state of preservation, some of the basal or dorsal root ganglia are hardened and sectioned for the rabietic tubercles, which appear in place of the degenerated ganglion—nerve cells. Their presence makes at least good confirmatory evidence.

Influenza.—This is examined directly from the swab, and secondarily by culture. The best medium for this purpose is blood serum, from which all the red corpuscles have not been extracted. The medium is greyish brown in color. It is best placed in shallow metal boxes, after the method of the Chicago Board of Health. Impression smears are to be made, after an overnight incubation. The characteristic bacilli then stand out in contrast to the others forms so sure to be present.

Anthrax.—The organs, preferably the spleen of the animals having died suspected of this disease, are taken out with all possible aseptic precautions. From these, smears for staining are made. At the same time an emulsion in sterilized water from a shaken portion of the tissue is injected subcutaneously into guinea-pigs, and inoculations made on the various culture media. The diagnosis is made on the characteristic morphology and cultural peculiarities of the primary sowings, and on the recovery of the same organisms from the organs and blood of the experimental animal, which usually dies in from 36 to 72 hours. Duplicates and controls are always made. In England a post-mortem is not allowed on large animals known to have died from anthrax, because if the body be opened and the blood shed spores develop and the generation is prolonged indefinitely, whereas if not opened the bacilli do not form spores, and very soon die out from the effect of the presence of saprophytic bacteria.

Actinomycosis.—The method here is,—finding by the direct examination of the softened centres or discharge from the suspected tissues of the "sulphur granule," the microscopic, after staining the fungus with methylene blue, and finally after hardening in alcohol, and formaldehyde, to section and stain with either picro-carmin or haematoxylin, and then looking for the ray-fungus, combined with the granulomatous formation in the tissues affected.

Waters.—These are examined for public health purposes only. Commercial, mineral waters, etc., are not examined except for the discovery of pollution. Water is examined physically, chemically and biologically. Under the head of physical examination, turbidity is taken note of, especially for the microscopic examination of the precipitates for inorganic substances, but especially for vegetable and animal tissues. The color is taken note of. The odor is looked for as to a possible indication of the source of pollution.

Chemical Examination.—In these laboratories since the examinations are carried on chiefly for the discovery of organic pollution, the principal of these is the nitrogenous, that is the substances of proteid origin, those arising from animals and plants. Nature's chief method of disposing of these is to convert them into ammonia, then into nitrites and nitrates, only an inconsiderable quantity going off as pure nitrogen. In our analyses we then look for these substances, viz., the free ammonia, the nitrites and nitrates, the products of decomposition, and finally the albuminoid materials not yet decomposed, are sought for. We have been in the habit of taking the nitrites and nitrates together in the analysis.

1. Nitrites and Nitrates. These are the end products of the decomposition of nitrogenous organic bodies. In the analysis we convert the nitrogen of these into ammonia by electrolysis by the use of the copper-zinc couple. Then distill off the freed ammonia, which until the heating remains in solution.

2. Free Ammonia. This represents roughly the first stage in the decomposition of the nitrogenous organic compounds. This is recovered by distillation and estimated.

3. Albuminoid Material. This is the nitrogenous organic matter that has not yet undergone decomposition into free ammonia or nitrites and nitrates. During the analysis this is converted by the action of an alkaline solution of potassium permanganate into free ammonia. This remains in solution, and is distilled off. The sum of all three ammonias represents the original quantity of decomposable nitrogenous organic matter in the water under examination. This organic matter may have originated from vegetable or animal sources. For instance, a considerable quantity of this nitrogenous material is found in peaty waters, almost purely vegetable in origin. A barnyard or a backyard well containing much organic nitrogen would probably have got it from animals in yards from the privies of the backyard, or from the dish waters thrown out on the soil. It has got into the well by seepage. Leaving aside the aesthetic, this organic matter of itself is not of much consequence. The danger of it lies in the fact that it is just such food material that pathogenic bacteria thrive on. Bacteria will soon die in pure distilled water, but may thrive in a polluted water or water which has organic matter in, especially nitrogenous organic matter, which acts as food for these bacteria.

Only a very small quantity of this is needed as food material. That from an animal source is more dangerous than that from a vegetable one. It offers a better food material for the pathogenic bacteria, and, besides, unfortunately, it also may have in it the products of the putrefaction that has gone on somewhere else before reaching the well. Canned meat is usually poisonous on account of these products. The same kind of materials may be found in water. The chief danger, though, is that a food material is offered the bacteria if by accident the water should become infected. The other substances looked for regularly in waters under examination are :

Oxygen Consumed. This represents all the oxidizable organic matters in the water, the nitrogenous, that has been spoken of above, plus those that contain no nitrogen, the coloring matters of plants, tannins, starches, sugars, etc. Of course, in waters polluted from vegetable sources, these substances are present in advanced quantities. In animal polluted ones they are in less quantities comparatively. Alone the results obtained by this analysis are not of very great value, but in conjunction with the ammonia, results help us to determine as to whether the source of pollution is animal or vegetable. Our method of procedure in this analysis is ten minutes boiling with acid permanganate of potash.

Chlorine. All waters have some chlorine in them derived from the earth. Each locality has its own standard, and, just as with the above substances (the ammonia and the oxygen, consuming materials), the standard for each locality must be known in order to draw any conclusion from the results of the examination. The only source of chlorine in waters other than from salt mines and deposits, is animal, through their urine, or their washing and kitchen slops. An excess above the normal local standard points to animal pollution. Usually when this is found, the ammonias and the oxygen consuming materials are found in increased quantities also. It gives a very fairly accurate indication of seepage from animal sources.

Hardness. Is estimated both as to temporary and permanent when public supplies are being examined. Hardness in this Province is rarely of directly hygienic consequence.

Bacteriological Examination. Under this heading counts of all bacteria in yards or from faecal matter lying about

the water from standard quantities (1.c.c.) are made. Examinations for colon bacilli, streptococci, and staphylococci, and other forms that might be suspected as present.

Bacterial Counts. When water is absolutely pure, bacteria cannot grow in it. Any nutritive organic matter makes it habitable by bacteria. The more there is present of this matter, the better the water becomes as a medium for bacterial growth. A large number of bacteria usually means a large quantity of organic pollution. No water in nature is absolutely free of organic matter; but, as being more or less, is more or less capable of giving harbor to bacteria. Every source of water has a more or less elastic number standard of bacterial inhabitants. In general, when many bacteria are present, we infer there is much organic matter in the water. But the chief value in a water, and this when its standard content is known, is as an indicator of pollution. Where waters are examined daily, this increase in bacteria is the most valuable indicator of pollution. An individual sample may have a large number of bacteria from some local cause (a bit of bread or other organic matter—a leaf, say), and not signify much, but when several show the increase, and the waters are widely taken, there is good evidence of pollution. Of course, count takes no account of the quality of the bacteria as to whether they are disease-producing or not, simply that they are increased in number, and, therefore, presumptive evidence, at least, that the organic matter in the water is present in increased quantity over the normal standard. Many good lake waters do not show more than 25 per cubic centimeter measure of the water. A leak in a conduit pipe, such as happened at Kingston, on the way inshore, through presumable sewage-polluted water, was shown by increased number up to thousands per cubic centimeter. For a count of bacteria to be of much value the water should be taken with much care. The examination cultures should be made with as little delay as possible after the water is taken, an hour, say, or if the specimen be encased in ice ten or twelve hours after collection. If these precautions are not taken, multiplication takes place in the bottle, and as bacteria divide when everything is favorable as to nutrition, moisture, and temperature, once every half or one hour, one would not know where one was at at the end of ten or twelve hours' time. Counts are not made for ordinary well water arriving here for analysis, because

of the difficulty of knowing what has happened since shipment, and also from the lack of knowledge usually of the bacterial standard numerically of that particular well's water.

Colon-bacilli. These are bacilli that normally inhabit the intestine of man and animals, especially of such animals that live with man—the domesticated animals—animals likely to be carriers of man's disease organisms. These colon-bacilli grow easily in waters, especially in waters already polluted with organic matter. They do not usually come through the earth with the water, but blow into the well from the top, carried there as dust or filth from barnyards or from faecal matter lying about in the neighborhood. A common method of entrance is from dirty boots, or the badly-fitting cover of the well. Very few wells have water-tight tops. It has been pretty conclusively proven that colon-bacilli of themselves will give rise to infections of the human subject resembling very closely typhoid fever, whether the bacilli come from man or animal sources. This colon-bacilli disease runs a course very like that of typhoid fever, and lasts sometimes as long, usually only a couple of weeks, but, nevertheless, has its percentage mortality as well as typhoid fever has. There is no way of distinguishing those colon-bacilli coming from animal sources from those coming from the human subject. When these bacilli are present in such numbers as to be recoverable from 1 c. c. of the water under analysis, they are presumably in large enough number to cause disease, if taken in by a prepared subject. Then, again, where typhoid fever has already broken out, and the source of infection or spread is sought, and we find colon-bacilli in the drinking water, since colon-bacilli are intestinal organisms, we suspect strongly that the typhoid bacilli are there also. Typhoid bacilli, on account of certain serious difficulties, are rarely looked for in waters: first, they are usually all gone by the time examinations are made; they die out very quickly in waters (two weeks usually). Then there are many cultural difficulties that cast too much doubt on the after results. Then, again, the search is too long a one for ordinary routine work. When the colon-bacillus is found, the water is dangerously polluted, and might cause disease simply from colon-bacilli, but is apt to have the typhoid bacilli present with them. Such a water will usually spread the disease. The discovery of the colon-bacillus is of especial value when waters whose bacterial flora is already known, as where a lake water is

being used, or where a water is being filtered and a bacterial check is being made from day to day. At Kingston the discovery of this bacillus lead to a thorough examination of the city's conduit pipe. Typhoid in an epidemic form had broken out in the city; a break near inshore was found. This was stopped. The colon-bacilli disappeared from the water; the typhoid fever also stopped spreading after the repair, though the repairing was done at the season when typhoid usually begins to become especially troublesome in this country, especially along the great lake fronts.

About 80 per cent. of well waters showing colon-bacilli, also show by increased chlorine and nitrogenous content—undoubted pollution, from man or animal. Waters are found chemically impure without colon-bacilli being present. These waters we look on as dangerous, because they have the nutritive material that would cause infective bacteria to thrive in them if they should get in, and would become especially dangerous if colon-bacilli were to find their way into them. Colon-bacilli are sometimes found in waters without these waters showing an increase in chemical constituents. They probably will die out soon; they are usually in very small number, and usually in a weakly condition. Such a water is worth watching, but not considered in itself very risky.

Streptococci and Staphylococci. These are bacteria which, though found in nature away from animals, as a rule live only a short time away from them. When found in water, especially the streptococci, they are looked on as very strong presumptive evidence, at least of recent animal pollution of a water. When combined with colon-bacilli, it is the habit to look on them as indication of an especially serious pollution of a water. Like the colon-bacilli, these are usually found in connection with strong chemical evidences of pollution also.

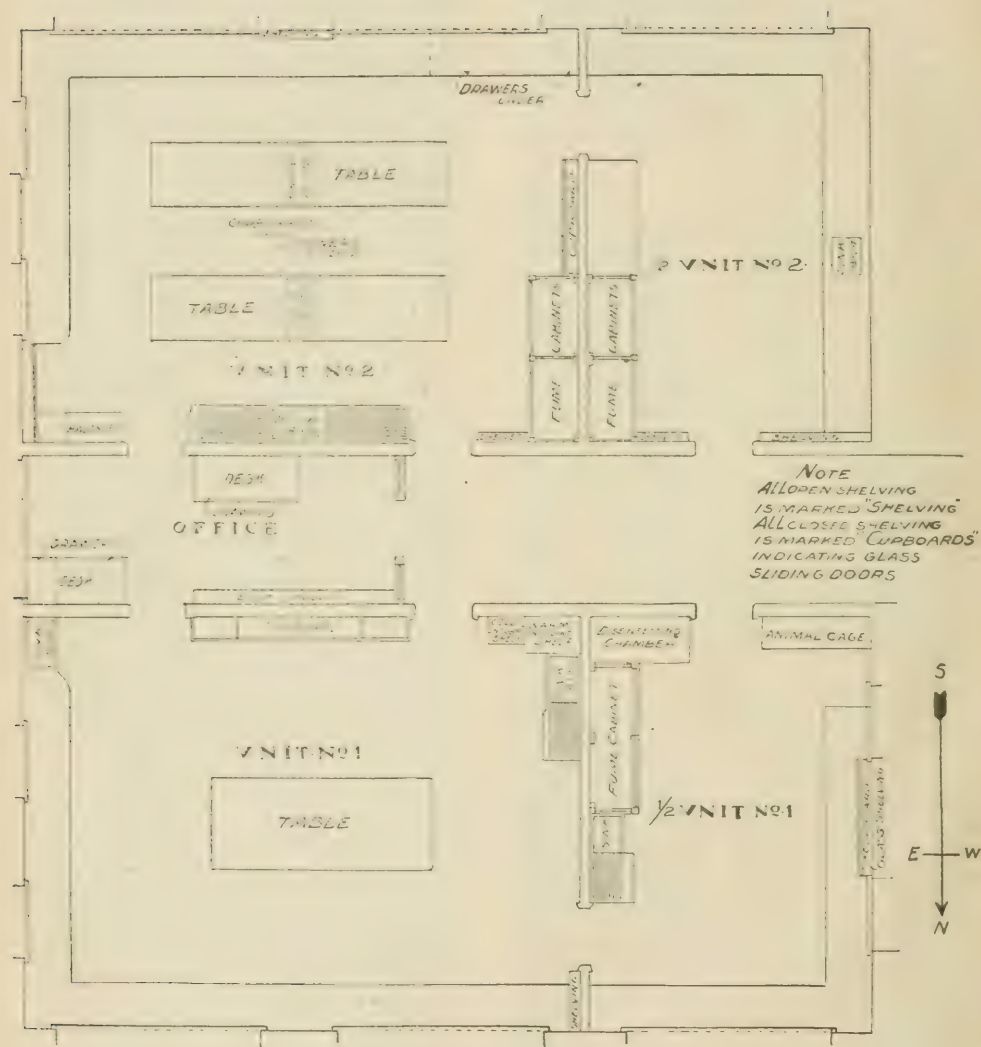
Other Pathogenic Bacteria. Fortunately in this country, search for the organism of Asiatic cholera has not had to be searched for. This is a water-borne disease distinctly. Anthrax in cattle is usually borne by water to pasture fields. The bacilli have been found in waters. The most notable is that by Dr. Russell, in Wisconsin.

Preparation of Media. This is prepared after the methods recommended by the Committee on Media of the Laboratory Section of the American Public Health Association, as reported in 1895 and again in 1901, except as to the immediate technique of preparation. In this I have followed Dr. Hill's method for the preparation of the three principal media (broth, gelatine and agar), 28th Annual Report of the Health Department of the City of Boston.

Storage of Media. This is done in an especially constructed refrigerator. This has its ice contained in an upper corner, the cold air dropping then under a partition rising up the other side, then through an opening above the partition repassing over the ice again and again. It keeps the air dry enough not to evaporate too rapidly, and sufficient not to have the tubes always moist and sticky, as in the older form of refrigerator.

Description of New Laboratories

The laboratory has been moved from the Biological Building of the University of Toronto to more commodious quarters in the new Medical Buildings. We have now over three times as much floor space as in the old quarters, and besides have our laboratories fitted up to our needs, and are prepared for future demands, and these are increasing constantly as methods for discovering and coping with disease advance. The following plate shows the extent and arrangement of the different rooms, with the arrangement of the principal apparatus:



Plan of Laboratories of the Board.

Anthrax. An investigation of a very interesting, long-continued series of anthrax cases was made at Ancaster. In the summer of 1902, on a farm adjoining the village, some four cattle died after a very short illness. The veterinary surgeon, after the hint of the owner, pronounced them cases of anthrax, except one of them. He thought the cow had died of something else, and did an autopsy. This was done on the barn floor. Considerable bloody fluid ran over on the floor and down into the basement "root cellar" below, from the peritoneal and pleural cavities of the carcass. The lesions did not seem definite enough for him to call it anthrax. The other three bodies were burned; this one was dragged to the opposite side of the road and buried in an oat field.

In the fall of that year the mangolds were stored in the cellar below the barn floor, where the autopsy had been done in the summer. As soon as the cattle were "tied in," these were fed to them. When those mangolds were reached that were lying on the ground that the body fluids at the autopsy had run upon three tons of anthrax. The carcasses were burned. About April of 1903 an animal died that was quartered in one of the stalls, where earlier the others had died. It had all the symptoms of anthrax. The animal's carcass was put in a shallow hole and covered with lime. However, one foot stood out clear from the lime. At the time of my visit I took material from this foot, from the walls of the barn-basement where the fluid had run down the previous summer at the autopsy, also took some material from the cow's carcass that had been buried in the field across the road. All the specimens showed the bacilli of anthrax.

On extensive inquiry, I found that cattle and horses had died on this farm, and a couple to the east of it. All the farms were situated on the low land to the west of a small stream which ran north across the main street of the village. From time to time (every year or two, sometimes three years apart) batches of three or four, away back thirty years, and some said even more, died after short illnesses. Some suspected poisoning. They were all in this particular district, north of the road and west of the stream, on its flooding side. These outbreaks usually took place in seasons where pasture fails at other places. The flat lands are then in greater demand for this purpose. No cases have ever been known east of the stream nor south of the main road. During the spring of 1903 an animal died on a neighboring

high land farm, whose symptoms resembled anthrax very much. On inquiry it was found that the owner had during the previous summer hauled some "nice black earth" from the banks of a stream flowing through one of the infected farms not very far from where some supposedly anthrax cattle had been buried.

Near where the stream crossed the main road were the ruins of an old tannery that had been burned some twenty-eight years previously. On enquiry it was found that the tannery had employed only two or three men, and had tanned only local hides. The tannery had been hauled to different farms in the neighborhood, the only ones showing anthrax out of the many being in that low-land corner to the north of the main road, and to the west of the stream above mentioned. Other and extensive ruins were found just south and north of the main road on the stream, which had been a woollen mill, employing generally 150 hands. This had burned down some twenty-five years before, after running a great number of years. This district is one of the oldest about Hamilton; in fact even older than Hamilton itself. There never was enough wool grown in this district, though, to keep the mill going continuously. I have found since on further enquiry that "foreign wool" was used as well as domestic in the mills. It is altogether likely the anthrax originated from this mill, and not from the tannery.

This Ancaster outbreak is of interest in showing us here the longevity of anthrax infection, each outbreak, of course, giving it new life. The gradual spread is ominous. Again, it is of interest in the presumptive evidence of its origin from the woollen mills, and a mill using "foreign wool." Ancaster is not unique in this respect, for we have in this Province already another locality where anthrax in cattle and man has originated most likely from "foreign wool" washings. Six of our large tannery districts have anthrax in them. All these tanneries use foreign hides. Some action would seem indicated to control the importation of this dread disease any farther into our country.

Anthrax in the Human Subject. One case came under our observation during the year. This man was a rough freight-handler at one of the Toronto railroad freight sheds. It devolved upon him to handle any sort of hides, and he became infected. The lesion was removed widely by incision, swabbed out with pure carbolic acid. The man immediately recovered. This disease was local in him, as it is so frequently in the human subject. Not that it remains local. As

a rule it later becomes generalized unless removed, as in this case. The bacilli were recovered in this case, first from some of the serum of the lesion, later on from the removed tissue.

Water Examinations. The most interesting of these was in connection with a typhoid outbreak in the City of Kingston. Typhoid fever had become epidemic. On analysis the city water was discovered to have colon bacilli and streptococci present in many samples. Both of the organisms are presumptive evidence at least of sewage pollution. When a series of specimens were examined at 100 and 200 feet distances inland from the intake, those near the intake did not show the organisms. Those near the shore did. The sewers of the city empty inshore. The city depends on the general St. Lawrence River currents to carry the sewage away from the intake. The conduit pipe, though, is simply laid on the bottom, and passes through this sewage zone. The analytical results presumed a leak in the conduit.

A careful search was made, and a large opening found some five hundred feet out from shore. On enquiry it was learned that a vessel had its anchor foul there during the previous fall. Tugs tried to pull it up, the chain broke, and the anchor was left and found at the break. This break allowed a comparatively large quantity of inshore water to enter the conduit. This was stopped by overlapping hoops (not a very complete job), but, nevertheless, new cases in the course of a couple of weeks became much less numerous. Why will not city councils face facts. The analysis after the repair showed almost complete absence of colon bacilli, only an occasional sample showing them. The chemical examinations were never definite enough to indicate this break. Of course we were not on the ground, and had not enough comparative data from which we could work. The presence of colon bacilli in such a water would seem to be of the greatest value.

CHAPTER IV.

CONTAGIOUS DISEASES IN THEIR ECONOMIC RELATIONSHIPS.

By P. H. Bryce, M.A., M.D.

It is a somewhat remarkable fact, in the voluminous literature of political economy on the functions of Governments in their relations to questions of national defence, international trade, and international development, and the care of the rights of the individual, that I have found in none, even of the most comprehensive works on the subject, a single chapter dealing specifically with the subject which has been chosen for this chapter.

It is quite true that sanitarians and prominent members of the medical profession have frequently illustrated, by the effect upon trade and by the losses which a country or a community may sustain, the costliness of epidemics, and, by estimating the value to the State of the labor of a man, have measured the productive losses to any country through deaths of wage-earners from preventable disease. But I find nowhere any clear and well-balanced study of the problem of "what are the clear and infeasible rights of, say, the individual or his family, when attacked with a serious communicable disease, of the neighbor or other fellow-citizen who may be exposed to the danger of contracting the disease, and of the community or State, in which an epidemic occurs, in connection with such a disease."

It is manifest, however, that it is a sociological question of the highest possible interest, whether considered from the vital, commercial, or philanthropic standpoint; and that it must admit, like other similar problems, of some adequate solution, and the discovery of some underlying principles or axioms upon which intelligent continuity of action, whether of the State or the individual, may be based.

If we may be permitted to surmise why writers on economics, from Plato's time to almost the present, have omitted to treat of this question, I am inclined to think we shall find that the lack, until the last quarter of a century, even in the medical profession, of any accurate knowledge of the origin or exciting causes of communicable diseases, together with the not yet wholly eradicated idea that they are marks of divine displeasure, has prevented writers from dealing with the question in any broad or philanthropic manner.

From earliest historical times, the gods, as Moloch, have demanded the costliest sacrifice, and even the first-born child was not to be kept back from

him; and when Malthus, the philosopher, wrote in 1803: Diseases, instead of being the inevitable afflictions of Providence, are indications that we have offended against some of the laws of nature," it must have caused a shock, like some of his other theories, to those who had hitherto been accustomed to measure the attitude of the Almighty to His creatures by the degree of their individual or general prosperity.

We may, in order to have some modern starting point, use the dictum of Jeremy Bentham, the good old eighteenth century utilitarian philosopher, that "the greatest good to the greatest number," or as put by Dr. Martineau, "from each for himself to each for all," as being as good a practical guide to action to-day as when it was written, since it is based upon the principle laid down by the Master of all ages, that "Whatsoever ye would that men do unto you, do ye so even to them."

We must then briefly enquire in what ways society may deal, under our existing knowledge and ethical ideas with the serious communicable diseases. We may start from either end, either from the standpoint of the individual, or that of society or the State, since any principles which are scientifically correct, will be applicable equally to both.

The Individual. Eliminating the punitive idea from the situation, we must view the individual who contracts a contagious disease as the subject of the operation of some natural law, discovered or hidden; and while from the ethical standpoint there may be personal responsibility on his part through ignorance, rash exposure, lessening of the defences through over-work or dissipation, all modern humanitarian sentiment will look upon such a one, to use a common expression, as the "victim of circumstances." Especially must we say this of the helpless child, the commonest victim of these maladies, even though parents may have been culpable or negligent. Toward such an one our attitude must not be that of the ancient who cried, "Room for the leper, room," but exactly the opposite, viz., that of one with the active sympathy of human brotherhood, which, fortunately, modern science enables us to practice without the exercise of any great personal heroism. For such an one, then, we are expected to act with a view to his highest welfare, by giving to him every

opportunity through housing, medical care, and nursing, to proceed to a safe and speedy recovery.

The Family of the Individual. As with the growth of society up from the individual in barbarism, the problem now becomes more complex. The lives of other members of the family must, if possible, be protected, and from the humanitarian standpoint, it is quite clear that not alone the sick child, but his brother, sister, play-mate, and school-mate, must, if possible, be considered; while from the economic standpoint the father, etc., as a wage-earner, enters into the problem.

The Community and State. Enlarge the problem so that its true proportions may be seen, as that where virulent smallpox invades a city, as it did Cleveland, Ohio, in 1902, or Galt, Ontario, a little later; or suppose cholera, as invading Western Europe via the Mediterranean, or the plague America, via Vancouver, and it is quite apparent that the commercial and economic phase assumes a prominence over-topping all academic questions of individual or family rights. The matter to be dealt with under these circumstances has passed, as when war is declared beyond the subtle refinements of diplomacy, and becomes a battle of giants—the patriotism of Theseus against a devouring Minotaur.

What, then, are the scientific, and, therefore, in my judgment, necessarily the ethical and practical demands of the situation when a child is attacked? Assume the case to be in a farm-house, and it is quite apparent that with the restriction of the patient at home, the keeping of children from school, and those nursing the child from the public, and the public from the house, that the public safety is amply guarded. The difficulty, however, continues to exist, that the farm-house is an hospital, that all will depend upon the size of the house, the complete isolation therein of the nurse, and the maintenance of such isolation for a period of six weeks. What the practical results of such a procedure are in dealing, say, with scarlet fever, may be judged from the fact, that it is comparatively seldom that one case occurs in a family of children without others taking it, and that a general house infection results as being possible, there is still another feature of the situation we must consider. Quarantine of the several school children and loss of time have been inevitable; and if there are older persons in the house their quarantine in the benefit of the public has, or ought to, have been insisted upon; while the final outcome, in the shape of a complete disin-

fection, which to be thorough is costly, is, of course, inevitable.

Should, however, a similar outbreak occur in a house in town, it may be said that the same methods may be carried out equally well. Does our experience confirm this?

A few weeks ago a cottage in this city was placarded for scarlet fever, and a day or two later, the patient, a girl, was dead. The mother of the house, while crape was on the door, had her infant on the street in its carriage, a necessary thing for the poor child, indeed, but with the result that the neighbors' children approached, and even kissed the child. A day or two later the infant had scarlet fever. It is apparent that the case in the country and that in the town are, from the public standpoint quite different.

Clearly the problem as it affects the neighbors and the public in the city is not solved in the given circumstances.

I have thus broadly stated the case in order that we may give a proper value to the various factors entering into the problem. We see in the instance just given the first case dead, the mother of the child who was sister of the patient, in the difficult position of trying to protect both, and, as the result has shown, protecting neither.

I have during the past twenty years endeavored not only to investigate conditions and judge of the broad results viewed from the scientific standpoint, but also the bearing of particular features of public health acts in so far as they have affected the vital and material interests of our communities. Anyone who has followed the legislation of the past century in countries such as England, must have often thought of the amazing change from laws of Draconian severity, whereby even as late as 1839 there were one hundred and twenty-nine offences for which death was the penalty to those of the present day. The old statute of 1774 provided that if a ship's captain entered the port of Quebec, coming from a port where contagious disease prevailed, without first anchoring off shore and notifying the authorities, he was liable to be hanged forthwith; while today the person who even knowingly exposes a neighbor's child to a fatal disease is often excused, and practically never punished.

It is quite clear, therefore, that what our laws demand is a *via media*, some common ground whereby the highest good to the largest number may result. It is now nineteen years since the Public Health Act of Ontario was modelled largely on the English Public Health Act, consolidated in 1875; and the more I have

seen the practical operation of its provisions, the more I have wondered at the practical wisdom in, and the exactness of its clauses for dealing with contagious diseases, in so far as exact knowledge regarding the several diseases had advanced at that time. I shall refer to only two or three of them.

The State says to the physician: Whenever you know that you have in your practice a dangerous communicable disease, you and the householder must both notify the State, that is, a municipal officer. Why does the State require this? Because experience has shown that the individual householder may not know or appreciate the dangerous element his household may become in the community, or he may be too much concerned about the immediate inconvenience to which he may be put, to be capable of judging the situation impartially as regards the public.

Further, in so far as he exercises an influence on the family physician, he makes it difficult for the latter to act independently of this view of the matter.

The Act next says, the municipality having been informed, necessarily must interest itself in the case, and under liability to damage for neglect must take such steps as the Act provides for the protection of the public. For instance, Sect. 93 of the Public Health Act states that the health authorities on being notified of a case of dangerous communicable disease "shall at once make effective provision in the manner which to them seems best for the public safety by removing such person to a separate house or otherwise isolating him, if it can be done without danger to his health, and by providing nurses and other assistance and necessities for him at his cost and charge, or the cost of his parents or other person or persons liable for his support, if able to pay the same, otherwise at the cost and charge of the municipality." The spirit and intention of this clause are so clearly and admirably expressed, that now, at the end of twenty years, I think there is none of us who could suggest a word which would improve it. It clearly contains the idea that if a disease is contagious, it will infect non-immunized persons, if they are exposed to it; and in 1885, during the great smallpox epidemic, Sir Oliver Mowat gave greater definiteness to a clause in the Smallpox Regulations, which require that not only must a patient sick of smallpox be removed to an isolated building or hospital tent, but that all exposed persons be placed in a separate house and be vaccinated, and kept under observation until the incubation is over.

These clauses have their necessary corollary in Section 106 of the Act,

which provides that the municipality, if it has not already provided, must provide an hospital to which such cases may be removed, and in which persons may be treated by their own physicians, and at their own expense.

I have given the substance of these clauses, because in a remarkable way they serve to bring out the bearing of the Public Health Act, as it deals first with the liberty of the individual, and, second, with the way in which it associates the liberty of one person with the interests of another.

All modern writers in dealing with the "Functions of Government," take as one of their starting points this so-called "principle of natural liberty, *laissez-faire*, or minimum interference." The philosopher Adam Smith says:—"Every man is left free to follow out his own interest in his own way," adding the remarkable caveat, "as long as he does not violate the laws of justice." It is, therefore, evident, that with regard to the matter under consideration we have, if possible, to determine what the laws of justice are; and having this decided, we must then apply to the case the practical rule as regards Governmental action, viz.: "That through the whole range of Governmental functions, the line of demarcation between the necessary and the optional is equally variable and uncertain."

If, then, the interests of the several persons already referred to are to receive equal justice and consideration, and if we have shown how intimate the relations of one to another are, it is apparent that the application of the last rule is comparatively easy. Thus it may be, and, indeed is, necessary to apply to an outbreak of virulent scarlatina a positive line of action by regulations, which might be unnecessary with an outbreak of measles. Hence it is apparent that, as Prof. Nicholson, of Edinburgh, remarks in his sociology, "The functions of Government are so varied and complex as to elude any simple classification."

The older writers of the utilitarian school of philosophy, taught with much plausibility, that self-interest, properly interpreted, was equally the public interest; but it is plain that "self-interest is a variable conception," as from the very nature of things it must be, depending upon the ethical plane upon which the thought of any individual mind finds itself. That this conception of self-interest coincides with the correctness of the scientific principles underlying any course of action, whether dealing with wages, production, defence of the State, or the protection of the individual, must, I think, be admitted.

Benjamin Kidd, in his work on "Social Evolution," states, what all will agree with, "that among the nations that have acquired an ever-increasing ascendancy, have been those which have possessed the best ethical systems; that is to say, ethical systems which, having secured the subordination of the present interest of the individual to the larger interests of an infinitely longer-lived social organism, have then allowed the fullest possible development of the powers and the faculties of all the individuals concerned."

It, hence, will be apparent, if the interpretation which has been placed upon the various elements entering our subject is correct, that the intelligent self-interest of every member of the community demands in the interests of the individual, of the family, of the community and of the State, a line of action, which comports with the liberty of the citizen, as understood by Adam Smith, since it means justice to all, and of necessity, as Kidd says, to the larger interests of the social organism of the

State. It, hence, must result in the greatest happiness of the greatest number, thus fulfilling Bentham's axiom, and inasmuch as it fulfils the spirit of the Divine Teacher, "who thought not of himself," it must fulfil all the requirements of a law of pure science, which in its application to practical affairs is as unalterably true as the law of gravitations to the deepest and most abstruse problems of pure physics.

It becomes a matter, after all, of social evolution along the lines of science, which has been thus expressed by Pope :

"Self love but serves the virtuous mind
to wake,

As the small pebble stirs the peaceful
lake ;

The centre moved, a circle straight
succeeds ;

Another still, and still another
spreads ;

Friend, parent, neighbor, first it will
embrace,

His country next, and next the human
race."

PART II.

CHAPTER I.

CHAIRMAN'S ANNUAL ADDRESS.

By E. E. Kitchen, M.D., St. George.

At this, our first quarterly meeting for 1904, we find the greatest change in the personnel of the Board that has taken place during its existence. During the past year Dr. Vaux, our respected and gentlemanly Chairman, resigned his position and retired from the Board. Through continued ill-health Dr. McCulloch was forced to retire and take up his home in a better clime, and now our old and faithful Secretary presides at his accustomed desk for the last time. Dr. Bryce entered upon his duties as Secretary of the Provincial Board of Health at its inception, and has been most closely identified with it. The splendid work which he has done for sanitation in this fair Province is difficult to estimate, even by those who have worked with him for years. The country has reaped the rewards of over 20 years of the best portion of his life, and I am bold to say that no more lasting monument will he ever have than the result of his Reports and daily work in this wide field. He now goes to Ottawa to fill a still more important and larger position in this Dominion, and he may rest assured that he carries with him the heartfelt wishes that success and happiness may ever follow him, of every member of this Board. Dr. Hodgetts, our late Inspector, who has for a long time been a valued official, is Dr. Bryce's successor, and I am sure no more satisfactory appointment could have been made. Our new members, Dr. Boucher and Dr. Thompson, have already entered upon their duties, and have already created the impression on the older members that their intelligence and gentlemanly conduct will make them valued members in the near future. To them, and to Dr. Hodgetts, we extend the glad hand, and hope that the same attention to duty and kindly feeling toward all and each member, will prevail in the future as it has done in the past.

This Board has now been over twenty-one years in existence, and when it is considered that at its inception in 1832 very little had been done in the matter of sanitation, the rapid strides which have been made since that time have been remarkable. True, in 1815 a medical Board had been established in Upper Canada, but mainly for the granting of licenses, and then in 1832, when cholera first invaded our shores, a Sanitary Commission was formed, which a few

months afterwards gave way to the establishment of a Board of Health. When cholera re-visited us in 1849, and again in 1854 and 1866, a Central Board was established, but its duties were chiefly for quarantine and a few ordinary regulations for cleanliness.

During the first two years of this Board's establishment its duties were mainly of an advisory nature, and it was not until the end of 1883 that fifty Local Boards were established, and it was not until 1884 that the Public Health Act was passed, and then the result of the Board's labors were visible to the public eye. Since then great strides have been made in the formation of waterworks, sewerage systems, suppressions of contagious diseases, and many other matters, so that to-day Ontario holds a foremost place in every department which goes to make up a healthy home for every class of people. To show the great change during these twenty years, I would state that in 1882 this Province had but twelve public water supplies, while now it has over 125, established at a cost of over \$12,000,000. In the former year only seven systems of sewage had been established, while now over sixty are in existence. There are 777 municipalities in the Province, and of these 755 Local Boards send in their reports while in 1882 there were no Municipal Local Boards in existence.

During the year 1903 the health of the Province has been fair and I will only trouble you with a few of the leading contagious diseases. Scarlet fever was more prevalent during the months of January, February, and March, having in each month 90, 104, and 95 deaths, respectively, while the least number of deaths occurred in September, October, and November, being 6, 9, and 9, respectively, while December only had 20, making for the year a total of 529 deaths.

In Diphtheria we had the greatest number of deaths in October, November, and December, being 66, 64, and 71, respectively, while the month of May had 23, March and August each 24, and June 26, making during the whole year 478 deaths. The largest mortality from Typhoid fever was in September, 37; October, 43; November, 30, while the smallest was in May, 22; June 13, and July, 18, making a total for the year of 298 deaths, the smallest in many years.

The largest number of deaths from Tuberculosis was in March, 221; April, 195; May, 232; while the smallest was in July, 139; November, 137, and August, 147; making a total for the year of 2,072, a much less mortality than we have ever had. The Government has taken a valuable step in offering a stated sum to each municipality which will undertake the establishment of a sanatorium for consumptive persons. To show that the public is interested in the matter, I have but to refer to the recent vote of the City of Toronto of \$50,000 for such a purpose. Pure air, nourishing food, proper exercise, and good drainage go far to assist the tubercular patient in his early and incipient stage to recover his good health of former years.

Smallpox has given a great deal of trouble for the past few years, largely owing to the mildness of the type, thus causing many who were not aware of their ailment to come in contact with the public. The large numbers of cases which were reported in 1902, greatly increased in 1903, so that while in January we had some 198 cases, only 5 were reported for November and 13 in December, and these were brought from infected Dakota. It is passing strange that a preventable disease like smallpox should still be allowed to infect our citizens. Germany the only country that enacts vaccination, has stamped this vile disease completely out, and still it is allowed to go on in free America, causing deaths, disarranging business and depleting public and private pockets. In the late invasion at Galt, where they had 86 cases and 8 deaths it cost \$11,000.00. If the Regulations of the last year were properly carried out this disease would soon be of the past. A pleasing feature is the manner in which the lumbermen of the unorganized districts are working in harmony with our Inspector, the companies and their men bearing all the expense and all friction has ceased since the passing of our Regulation 12, as amended last year.

Two outbreaks of smallpox and one of diphtheria include all the cases for the past year that the Province was liable, and that amounted to \$1,100.00.

It may not be out of place now to note the large increase of Isolation Hospitals, and as they may be so cheaply erected, and two or more municipalities may join in the expense, there is no reason why all parts of the Province should not be properly supplied. That an isolation hospital should not be used for more than one contagious disease has been the subject of judicial examination at Ottawa. Judge McTavish remarks: "It is quite clear that the ideal hospital, for the reception and treat-

ment of infectious diseases, should be not merely in separate buildings, but in buildings separated by as long a distance as possible, with separate administration, separate dispensary, and separate laboratories for pathological experiments."

During the past year new regulations have been issued as to Diphtheria, and Scarlet fever, which are very important. The Committee on Epidemics have examined very carefully re Hygiene of Barber shops, and handed in to the Board a splendid report, which meets largely with the approbation of the barbers, and which, if carried into effect carefully, cannot but prevent the spreading of many a contagious disease. Likewise careful reports upon tent wards, construction camps, and hospitals, smallpox in Essex, scarlatina in Port Hope and in Rodney, diphtheria in Darlington, Whitby waterworks, as well as Gananoque, pollution of Grand River, Port Hope sewerage system, and many other important reports, for which there is not sufficient time even to name.

Very satisfactory reports have been sent in by the cities, from which it is learned that the death rate ranges from 11, the lowest, to 19, the highest, in the thousand. They are all alive to the necessity of good water and sewerage, and are increasing these works, and filling up their wells and cesspools.

An important amendment to the Public Health Act, assented to June 12th, 1903, has not been made so public as it should have been. It is to the effect that a Medical Health Officer may enter tenement and lodging houses and laundries, when overcrowded and filthy, and act accordingly.

A great deal of time has been spent in making perfect an Act for the formation of County Medical Health Officers.

The Medical Health Officers are pretty well convinced that a Biological laboratory is necessary in every county town, so that microscopical and chemical examinations may be made as early as possible. The Biological Department of the Board, which was established in 1890, has done very valuable work for the Province, and the many increased calls upon it from year to year shows the very important parts this department plays, not only in connection with bacterial disease in man, but also in animals. The new and commodious quarters, and the splendid equipments, place this department in so enviable a position that it is doubtful if there is anything superior to it in America.

A resolution was passed at our last meeting in 1903 directing its Committee on School Hygiene to undertake an in-

vestigation of the sanitary condition of the schools of the Province, with a view to obtaining information which would be of assistance in having any defects in existing conditions improved. Our Board proposes to conduct a series of experiments, bacteriological and chemical, upon the air of schools, and thus determine by experiment what systems of ventilation are proving most efficient. For this purpose the Hon. Mr. Harcourt was approached, who readily saw the good which would accrue from such a course, and called a meeting for February 2nd, and invited a number of gentlemen to give papers on special subjects bearing on the matter under consideration. There is nothing to-day which

would add more to the health and financial condition of the people than matters like this and a few others, such as an improvement in the sanitary condition of our dairies, etc.

. The people, generally, are yearly becoming more intelligent in such matters, and we fondly hope that the near future will do away with many conditions which now really exist, and which a continuous educating influence will finally supercede.

All of which is respectfully submitted.

(Sgd.) E. E. KITCHEN,
Chairman.

February 3rd, 1904.

CHAPTER II.

REPORT OF THE SECRETARY FOR THE QUARTER.

By Dr. P. H. Bryce.

To the Chairman and Members of the Provincial Board of Health :

Gentlemen,—Your Secretary begs herewith to present a brief report on the chief features which have marked the public health of the Province since the last meeting of the Board on February 11th, 12th and 13th.

It will be remembered that at that time two epidemic diseases, smallpox and scarlet fever, were both prevailing, and threatening an unusual severity and dissemination, the one especially in the Galt district, and the other in the Toronto district.

Fortunately, after an active campaign, in which most of the Boards and Medical Officers did good work, the County of Waterloo has for some weeks been reported free from smallpox. The following are the cases and deaths which are directly traceable to the unfortunate outbreak which originated in Galt, a case coming from Cleveland, where last autumn a virulent form of smallpox was epidemic :

one years is sufficient to satisfy us as to the catholicity of our creed; but, remembering the truth, "that a prophet hath not honor in his own coun-

Municipality.	Cases.	Deaths.
Galt.....	86	6
Dumfries North.....	1	
Beverley.....	1	
Paslinch.....	2	
Wilnot.....	3	1
Easthope North.....	3	1
Easthope South.....	7	1
Blenheim.....	17	
	142	11

Municipality.	Cases.	Deaths.
Guelph.....	1	
Toronto.....	1	
Brantford.....	4	
St. Thomas.....	10	
Petrolia.....	1	
Mornington.....	1	
Preston.....	3	
Hespeler.....	1	
	142	11

This outbreak is of serious interest, inasmuch as it has brought into striking relief the chief points of cleavage which elsewhere have marked the struggle with outbreaks of this disease on the part of Public Health Boards and their officers. For twenty-one years in Ontario but one theory and practice have governed this Board and its officers in dealing with smallpox, viz., that which has governed in every country of the world where the voice of modern science has penetrated and been held, which, briefly translated, has meant the isolation of the sick and immediate vaccination of the exposed, the latter being extended in many instances to a general vaccination of the population of a municipality. An estimate of the outbreaks up to 1900 since 1882 gives the following :

—	Outbreaks.	Cases.	Deaths.
From 1882 to 1900.....	135	1,085	170
In 1901.....	190	2,500	12
In 1902.....	....	1,800	....

Since 1900 the outbreaks have been very numerous, but the deaths have been very few till this year.

In view of an anti-vaccination meeting having been galvanized into existence in Galt, where at the close of the epidemic, a number of persons who had recovered from the panic thought themselves safe to criticize the active measures taken to have general vaccination carried out, we have found these somewhat historical disturbers of the public peace, which, as a rule, has marked the progress of public health measures in Ontario, holding public meetings, and criticizing local officers who have been doing their duty.

To this Board I imagine the recollection of the way in which the principles of the science has led us through the wilderness during the last twenty-try," we would refer to the most recent events bearing upon the subject of vaccination in other countries.

In Germany compulsory vaccination has existed since 1883, with the result that vaccine from twenty-three establishments is sent out to public vaccinators, who vaccinate in infancy, at entrance to higher schools, and into the army and navy.

In France the law since 1900 has been made absolutely compulsory.

In England, where the provisions for infant vaccination in every municipa-

ity were absolutely compulsory from 1871 to 1898, a clause in the Act was introduced which gave parents an option of a fine for neglect or going before a Magistrate and stating they had conscientious objections to the practice, and thereby save themselves from the penalty. This clause was made operative for five years. Fortunately, the sturdy common sense of the Anglo-Saxon, which has shown itself in this and most other matters, is not readily stampeded, and the annual reports of various public officers have shown relatively more vaccinations during these five years than before, because of the change in method by which, instead of compelling the people to come to a public office, they were offered free vaccination for their children in their homes. This year, however, when Parliament must deal with the matter again, the prototypes of our agitators have been abroad again, and recently presented their views to the members of the British Cabinet for Scotland. In England, on the other hand, after the experiences in London in 1901-2, an Imperial Vaccination League has been formed, which have been pressing their views upon the Government.

Perhaps one of the most instructive illustrations of the tendency toward the normal in Nature in instances of mental and physical aberrations is found in the following editorial in the "American Physician" of April (the professors of which medical school were among the first to oppose the principles underlying the practice of vaccination).

"The Cleveland Anti-Vaccination Society have now again issued from their hole, into which they crept when the anti-vaccinationist members wanted to see them most, during the past four months; and now that the storm is over, i.e., vaccination has completed the work of purifying our city of the threatened smallpox epidemic, these sunshine patriots are refurbishing their uniforms, pipe-claying their 'smalls' and putting an extra polish on their 'brasses,' in other words, they are again in the resolution business, and will issue a good hat-ful of these, condemning the practice of vaccination in general, and the compulsory vaccination of the Cleveland school children in particular.

"When this wonderful society of antis was most needed, during the recent unpleasantness, it flunked and farked and could not be found—nor hair nor hide nor hoof.

"Perhaps these good people. . . will see an account of that one case of tetanus at Columbus. . . Then we will have some more letter-perfect resolu-

tions anent the heinous violation of personal rights, and the filling of our healthy bodies with vile and violent poisons, making them into charnel houses and killing our children—this one child at Columbus. But the several hundred thousand other children who did not die, who did not catch the smallpox because a sacrilegious Board of Health in the State ordered thorough vaccination—those don't count. . . Better put up the shutters and go out of commission."—The American Physician, April, 1903.

We have thus briefly summed up the progress of public opinion and of legislation based upon it elsewhere, and I desire to briefly summarize the position which both theory and practice place us in as a Board.

1st. In the organization of the Board, in 1882, we found an Act on the Statute Book placed there in 1863, compelling municipalities to provide annually stations and officers for vaccinating all children within three months of birth.

2nd. The theory and practice of physicians from the time of Jenner had so accorded with the requirements of this law that we, as a Board, have not only urged the municipalities to comply with the law in routine fashion, but in 1885, during the historic Montreal epidemic, made re-vaccination during an epidemic compulsory under an Order-in-Council, thereby so enabling local boards to deal with outbreaks that, while 7,000 deaths occurred in Quebec in six months, there were but 22 in Ontario in 1885, 250,000 people coming directly from the infected city of Montreal having been inspected on the trains in three months as to vaccination, and everyone returned to Montreal who refused to be vaccinated.

3rd. Many hundreds of outbreaks have been dealt with, and during the past three years, and as before, every extended outbreak was due to the disease having got headway by being called chickenpox, and subsequent failure to make vaccination general. In every instance vaccination promptly limited the spread.

4th. That the experience of medical men in dealing with cases in every outbreak in hundreds of epidemics has been the same, as in every outbreak for 100 years, that, given an outbreak in a family diagnosed early, all vaccinated persons were saved from the disease, or had it light, and every unvaccinated person, vaccinated within four days after exposure, either did not take smallpox or took it mildly with vaccination.

5th. That the protective value of vaccination has been proved very perfectly by the incidental failure in certain vir-

uses, which were abnormal, in the time of appearance of the vesicle and its character, since they did not protect families in which other cases were, even when vaccinated within four days after exposure. Neither did they protect against vaccination with lymph of normal strength even within a month after.

6th. That the medical profession to-day has its belief in vaccination confirmed not alone by experience, but by the theory of immunity, worked out experimentally in anthrax, in diphtheria, in glanders, in tetanus, in plague, in rinderpest, and other diseases, and can, therefore, logically insist that in a disease, which before vaccination existed had 80 per cent. of its victims in children under 5 years, and which to-day, as in the London epidemic in 1901, had not a single victim of those under 10 years of age if vaccinated, parents should be required to have every babe vaccinated when the disease does not even cause temporary inconvenience or loss of time.

7th. That the legislator who would vote to remove from the medical officer of health, from the employer of labor in factories, on the railroads and in the army and navy, their protection, would assume a responsibility for misfortunes, vital, commercial and national, which would result in deaths, in business loss, and in commercial boycott.

8th. Time and again your Board has prevented a boycott at the border by being able to show that compulsory vaccination and isolation were complete, and your Secretary has yet to learn of a case of smallpox (where it has been officially recognized) taken from Ontario into any neighboring State.

While the Board has thus shown its faith in vaccination by its works, it naturally wishes the public to understand, that, as the Metropolitan Asylum's Board, London, says in its report of 1901, in dealing with the smallpox epidemic, "we do not exist to promote or extend vaccination," but, again using its words, "believing most thoroughly in the protective powers of vaccination, with their experiences of its value in the case of their own staff," this Board, like the London Board, thinks it right to give the public the benefit of such information as it possesses.

Altogether, during the past three years, some 8,000 cases have been treated, and at least 500 medical men have been in attendance upon cases, and several hundred young men from college, often by no means strong, due to overstudy, have been sent out, at the request of Local Boards by your officers to care for cases of smallpox, and in not a single such instance has a young

doctor, though living almost continuously in the house with often several patients; taken smallpox, his only possible protection being vaccination.

Re smallpox in those persons vaccinated at any time during life, during 1891 in London, 1,282 cases had 127 deaths, while of 307 unvaccinated cases, 119 died, or 38 per cent. Not a death occurred under 10 in any vaccinated person.

In view of the action which the English Parliament is to take this year regarding vaccination, an Imperial Vaccination League has been formed, and on January 14th it interviewed Right Hon. Walter Long, M.P., President of the Local Government Board.

Beginning with the President of the Royal College of Physicians, the list included many of the most prominent professors and teachers in Great Britain.

Dr. J. C. McVail pointed out that if early vaccination, after ten years were practised in England, as in Germany, epidemics of smallpox would be abolished, and those trade disturbances resulting from such would be prevented. Dr. Barnardo (of the Barnardo Home) was quoted that in 7,000 re-vaccinated children not a single case of smallpox had occurred in the Homes. Hon. Mr. Long, in reply, said, among other things:

"As one of their speakers had said, the Board had a growing experience of the advantages of vaccination, and the only wonder that filled it at all was that it should be necessary at that period of the world's history for a great deputation, so representative in character, and gathering its members from all parts of the country, to come to support that which they in that place, at all events, believed ought to receive the unqualified support of every intelligent person."

"Reference has been made to Germany, and the record of Germany was startling. He thought he might say that Germany had practically eliminated the disease altogether, because the cases that occurred were almost entirely limited to the frontiers. He added: 'There were those who would still say that vaccination was no remedy, and that the attempt to spread vaccination was to do that which was wrong and antagonistic to the liberties and privileges of the people. He stood aghast at statements of that kind.'

We thus see the attitude of those best qualified to judge facts in England and elsewhere; and we have no doubt but that in like manner public opinion in Ontario will express itself

should any serious attempt be made to interfere with the working of the Vaccination Acts.

Scarlatina.

This disease, as was indicated at the last meeting of the Board, has prevailed to an unusual extent during the past winter and spring; and it is gratifying to know that so thoroughly have the Local Boards been aroused to the danger confronting the lives of the children of the Province, owing to its virulence, that the report for April has shown a very decided decline in its prevalence as there have been reported only 61 deaths in 70 municipalities. What this prevalence has been, however, will be seen by reference to the Monthly Bulletin for March.

Thus it appears that there were in March 97 municipalities which reported 515 cases and 92 deaths; while February had 104 and January 90 deaths.

It is to be hoped that the falling off in the number of municipalities from 97 to 70 reporting cases, and in deaths, 95 to 61, will continue.

That the same great necessity, however, for Local Boards to take advantage of all the powers given them under the Act and Regulations, will continue, is seen in the fact that the rate of cases of mortality in April has been as great as in March, being 20.6 per cent. of all cases reported.

We learn, then, from these figures that in the four months of this year this disease has caused 350 deaths—or at this rate for the whole year, 1,050 deaths.

It would appear, therefore, that, from the standpoint of wide-prevalence and of virulence, the Provincial Board of Health may well be encouraged to stimulate and assist by every means possible Local Boards and their officers in their serious task of fighting this treacherous disease.

The Board will recall the step taken at the last quarterly meeting, to give precision to the work of Local Boards of Health by definitely fixing upon medical health officers the responsibility for action in cases of scarlet fever, instead of continuing the anomalous position of authority to raise quarantine, etc., previously placed equally upon the Local Board, the Medical Health Officer and the attending physician. It will be remembered that this step was taken by the late Sir Oliver Mowat, re smallpox, when the Regulations were made an Order-in-Council in 1885, but one year after the Public Health Act was passed. Nearly **twenty years** have proved the wisdom of the step, since otherwise officers

would often have been powerless to act in cases where the responsibility was placed upon them.

The London City Council has forwarded a resolution, questioning the wisdom of taking from physicians, with no official responsibility, the privilege of determining the nature of the quarantine, to be established in any given case. The point is one which was fully discussed by your Board at its last meeting, and does not seem to call for extended remark. Suffice it to say that many physicians are conscientious, and would do right even to their detriment, but it is manifestly desirable that this, the most common cause of misunderstanding between Medical Health Officers and family physicians, be removed by definitely fixing responsibility on the former. Another criticism of a somewhat unusual nature, has come from the Council of the City of Toronto, viz., that: (1) Neither the physician in charge nor its M. H. O. has option in the matter of keeping a scarlet fever patient at home; (2) that the removal of a case must be done in cold winter weather in all cases, even with danger to life; (3) that it means separation of mother and child, with a result that cases will not be reported.

It will be remembered that all these points, likewise, came up in discussion, when the Regulations were under consideration; and the various objections which might be raised were then given their due weight.

It may be well to point out in answer to these objections, that primarily this Board took action in February, because scarlatina had assumed an importance greatly exceeding smallpox, from the standpoint of mortality, and that the Board undertook this same line of action, which has enabled Local Boards of Health for nearly twenty years to deal effectively with smallpox.

There is nothing in this phase of the Regulations which has not always been laid upon Local Boards of Health, by Section 106 of the Act; and the Regulations have simply drawn attention to the necessity for Local Boards of Health supplying either permanent or temporary hospitals to which cases of scarlet fever may be removed by the M.H.O., with, if necessary, the mother as nurse, the primary object being to protect the other children, the neighbors, and to allow wage-earners to go to their work.

That this is the view of the Regulations taken by other municipal authorities, may be gathered from the statement of the Mayor and M.H.O. of Ottawa in the following correspondence:

"I am glad that the Provincial Board has adopted regulations requiring all scarlet fever and diphtheria patients to go to an hospital where such exists in a municipality. This was the one essential that we wanted. We felt that so long as cases were allowed to be treated at home, that these might prove to be so many centres of contagion, but now that the Provincial Board has given us powers which will enable us to send all cases to the hospital, I look forward to the time in the not distant future when we shall so reduce the number of scarlet fever and diphtheria cases in Ottawa, as that these diseases may be considered practically non-existent."

This letter states quite concisely the practical issue, which confronts all Local Boards of Health, and which is fully supported by the reports of the Medical Health Officers of Hamilton and London:

Dr. Langrill, M.H.O., of Hamilton, writing about diphtheria, says:

"The statistics indicate that the death rate from diphtheria decreases proportionate to the early administration of anti-toxine. Did public opinion give us the same support in the control of diphtheria as smallpox, it would be no more prevalent. This would mean isolation in hospital of even the mildest cases, quarantining suspects and those who have been exposed and keeping both at the public expense until they could go about with safety. Leaving out of account all the suffering and pain which is beyond any estimate, it would pay any municipality to do so from a commercial standpoint.

"Economists estimate a life to be worth one thousand dollars to the State. If this basis be accepted, this city lost last year one hundred and forty-nine thousand dollars from death by infectious disease (including tuberculosis). The expense in treatment, nursing and loss of wages, etc., would amount to as much more, making about \$300,000 in all. Surely it is necessary to take some effective means of controlling these diseases."

Dr. Hutchinson, M.H.O., of London, in his last annual report, further states:

"Many parents show an utter disregard of the golden rule, allowing their children, while convalescing from mild forms of scarlet fever, to mix with other children; send them to stores, and sometimes to school. Placarding a dwelling is a notice to the public to keep away from that dwelling, and that the inmates must remain at home, but there are cases where it would require the establishment of a 'peaceful blockade' by a police constable to effect complete isolation. Some of the city physicians are equally culpable, for they, knowing the requirements of the Public Health Act, at the solicitation of the parents, do not report all the cases coming under their notice. Although there were no deaths during the year from scarlet fever, there was an unusually large number of sporadic cases of a mild type, many of them due to the carelessness of parents and neglect of physicians. Hereafter physicians and householders neglecting to promptly report all cases of infectious diseases in accordance with the Act, will be given opportunities in the Police Court to explain why they did not do so."

Perhaps, however, the view which is held on this subject in England, by those who have to deal with large populations, will be of further interest.

The reports of different large English and American cities for 1901 are to hand, from which I have extracted the following figures:

These figures illustrate imperfectly a fact of great practical importance, viz., the increasing estimation in which hospital treatment is held, not so much in the matter of treatment, as in being a sanitary necessity for stamping out disease. The Metropolitan Asylums Board of London is especially empowered to deal with contagious diseases sent in by the Medical Officers of Health of the different sanitary areas of that city. They had in all in 1901, 6,178 beds in 12 hospitals, which can be

Table Showing Percentage of Cases of Smallpox, Scarlet Fever, Diphtheria and Typhoid Fever Treated in Hospital.

Cities.	Smallpox.	Scarlet fever.	Diphtheria.	Typhoid.
	Per cent.	Per cent.	Per cent.	Per cent.
London, Eng., 1901	97.	78.8	71.8	45.3
Liverpool, 1901	100.	54.9	56.	65.5
Birmingham, 1901	None.	80.	None.	37.
Dublin, 1900	None.	100.	100.	50.
Boston, 1901				
New York, 1901	100.	7.00	10.00	Not stated.
Toronto, 1899	100.	40.7	72.9	Not stated.
Ottawa, 1902	100.	56.3	90.1	Not stated.

increased in an emergency if necessary. How this accommodation has been developed is seen in the following table.

Percentage of Admissions to Hospitals in London of Total Cases of Smallpox, Scarlet Fever, Diphtheria, and Typhoid, Notified in 1901.

Diseases.	1890.	1895.	1900.	1901.
Smallpox.....	36.67	84.5	73.50	97.2
Scarlet Fever...	42.82	58.2	75.15	78.89
Diphtheria.....	17.87	41.55	72.48	74.85
Enteric Fever.	22.49	24.13	47.70	46.34

It seems little short of marvellous that in a city with a population of 3,544,983, the machinery should have developed to such a completeness, that 74 per cent. of all the cases of these four most serious contagious diseases should have been treated in hospital, with a resulting decreased mortality, only excelled by the City of Guelph, Ontario, out of the 15 cities given in the table. The Managers' report of the London hospitals points out how, in 1893 and 1895, the percentage of cases in hospitals decreased, owing to the prevalence of these diseases, and insufficient accommodation provided; and further states that the percentage might again fall during an epidemic. The remarkable situation exists, however, that, with such abundant accommodation for removal of first cases, the constant result follows, that the sources of epidemic—first cases—are being constantly removed. Sir Charles Cameron, of Dublin, urges in his report: "I would earnestly beg the Committee to bring this important question of hospital accommodation for fever cases before the Council." Dr. E. W. Hope, Medical Officer of Health of Liverpool, in 1901, writing on hospital accommodation, states: "It is now some 16 or 17 years since the necessity for the provision by the City Council of adequate hospital accommodation came into prominence. At that time, however, in Liverpool, as elsewhere, public opinion was somewhat unformed, owing to the absence of any experience of the advantages resulting from hospitals, other than work-house hospitals, for their treatment, and there was then little public support in promoting the work; indeed, there was a general reluctance, more especially on the part of those who were least able to isolate or nurse the infected at home, to allowing the patients to be removed to hospital. However, as more beds became available, and the advantages of hospital treatment became more apparent, not only in promoting recovery, but what is of even greater importance, in

checking the existence of disease, the public soon began to realize the advantages of these institutions, and at the present time seek as a favor, or demand as a right, that means shall be provided by which persons may be taken care of when suffering from infectious sickness."

Speaking with regard to the work of the year, he further says: "Several circumstances combined during the year to tax very considerably the existing hospital accommodation. Very serious inconvenience was experienced on account of the inability to provide accommodation in hospital for considerable numbers of patients who needed such accommodation. That was notably the case with scarlet fever. These cases had to be left at home, with the inevitable consequence that infection was spread from them as centres, and this disease extended to a very considerable amount." It is further added: "The reduction in the number of cases of this disease, which had been noted in 1900, ceased immediately the removal of patients to hospitals was stopped." How large a part of public health work this question of hospital provision forms in England may be gathered from The Isolation Hospitals' Act of 1894. Under it the County Councils are to consider the need of such an hospital in any borough, and under section 6, may direct the County Medical Health Officer of Health to make an enquiry as to the necessity of an Isolation Hospital being established for the use of any particular district, and if he reports that such an hospital ought to be established, the Council may take proceedings to have it established, the same as if a petition had been prepared by a local authority.

As regards the utility of hospitals in lessening the spread of contagion, Dr. Alfred Hill, Medical Officer of Health for Birmingham, speaks in the report of 1901. Referring to the prevalence of scarlet fever, he states that the disease was as prevalent in houses with over three rooms, as in those under, viz., cases at the rate of twelve houses in every 1,000. He then remarks, "It seems to me, however, very probable that the incidence of the disease would be much greater in the small houses if the cases were kept at home, instead of being removed to hospital. As a matter of fact, in the quarter referred to, 444, or 95 per cent., of the cases in three-roomed houses were removed to hospital. From houses of four rooms and upwards, 85 per cent. of the cases were removed, showing that the hospital is utilized, as it should be, to a greater extent by the tenants of small houses, than of large ones."

These quotations seem to your Secre-

tary, apart from our daily experience in handling smallpox, scarlet fever and diphtheria in this Province, to effectually settle any question of the necessity for dealing with any serious epidemic disease in a thorough manner; and the fact that with the Act in force nearly twenty years, only a small number of municipalities have complied fairly with the terms of Section 106 of the Act, makes it apparent that Medical Officers of Health must be empowered as in smallpox, to provide means for separating cases from their families. The following table indicates the present hospital accommodation, except where Local Boards are obtaining cottages and tents:

Table of Cities and Towns With Contagious Diseases, Hospitals and Wards.

Toronto.—Isolation Hospital—Managed directly by Local Board of Health.

Hamilton.—Wards in General Hospital.

Kingston.—Wards in General Hospital and Hotel Dieu.

Ottawa (1903).—Isolation Hospital—Managed by Local Board of Health.

London.—Separate wards in General Hospital.

Galt.—Isolation Hospital, under management of General Hospital.

Guelph.—Separate annex in General Hospital.

Guelph.—Separate annex in St. Joseph's Hospital.

Mattawa.—Separate annex, under management of General Hospital.

Brantford.—Separate building, under management of General Hospital.

Port Arthur.—Wards in St. Joseph Hospital.

Belleville.—Separate wards in General Hospital.

Brockville.—Separate wards in St. Vincent de Paul and in General Hospitals.

Collingwood.—Separate building at General Hospital.

Peterborough.—Nichols Hospital and St. Joseph's Hospital (separate wards).—Under hospital management, contracted with by Local Board of Health.

Chatham.—Separate building, under management of General Hospital.

Chatham.—Separate building, under management of St. Joseph's Hospital.

Stratford.—

Sudbury.—Separate building of General Hospital.

Sudbury.—Separate building of St. Joseph's Hospital.

Huntsville.—Separate building of General Hospital.

Berlin.—Isolation Hospital, under management of General Hospital.

6. Where the emergency demands such measures, he shall further place in another building or tent, which shall be provided as prescribed in the Act, all persons who may have been exposed to the contagion, and shall supply them with all necessaries until the period of incubation of the disease shall have elapsed, as provided in Section 93 of the Public Health Act. No person who has had scarlet fever shall go, or be permitted to go, abroad until the period of incubation of the disease has elapsed, and until the clothing or effects worn or carried by or with all persons exposed to the contagion be disinfected as provided in the Act.

Whenever in a house there is a case of scarlet fever, or wherever there are persons isolated in the same on account of exposure or supposed exposure, to scarlet fever, no children or other persons shall be permitted to leave the premises until in the opinion of the Medical Health Officer, they and their clothing are free from infection.

7. Whenever a case of scarlet fever has occurred in a child attending any school, the Medical Health Officer shall personally, or through another physician, cause a daily examination to be made of all the children of the school room for at least one week from the date of the occurrence of the last case among such children. If any children are absent from such school, a medical examination shall be made of them in the same manner as if they were in attendance at the school.

Experience has thus shown that unless this Board assist Medical Officers by its regulations, the municipal authorities will be slow to move.

The need for this compulsion is daily forcing itself upon your Secretary, as the letters from many centres indicate.

Diphtheria. Fortunately, where scarlet fever has been so prevalent and fatal, this disease has been relatively less fatal, there having been only 21 deaths in March, and 28 in April. Whooping cough and measles have both been present, there having been 19 deaths from whooping cough, but only 3 from measles.

Other matters of importance, as waterworks and sewerage works, will be presented in special reports.

All of which is respectfully submitted.

(signed) P. H. BRYCE.

Toronto, May 28th, 1903.

CHAPTER III.

REPORT OF THE SECRETARY FOR THE QUARTER.

By Dr. P. H. Bryce.

To the Chairman and Members of the Provincial Board of Health :

Gentlemen,—Your Secretary begs to present herewith his report on the health of the Province, more particularly as it is affected by contagious diseases, for the quarter :

Scarlatina. While this disease continues to be present, still the great decrease which marked the other later summer months has not notably altered. Peculiar as the disease is to the early years of school life, there seems little doubt but that the virulence that attended the disease last winter and the following spring, has roused Local Boards of Health to precautionary methods not before taken. The municipalities reporting cases in October are 31, cases 202, deaths 9. What is notable further in this month is its lessened virulence, making, as has before been remarked, this disease has a special peculiarity.

Several special references have been made to it by different Medical Health Officers, reference specially being made to the apathy of rural Boards in instances where the cases have happened to be mild. In some of these, many cases seem to have occurred which were not reported, and some even where no medical services were given.

Typhoid Fever. There has been nothing which has marked the past season more than the freedom from cases of this disease. Nowhere has the disease prevailed as an epidemic, although in Brantford and Sarnia, two old endemic centres, a considerable number of cases have occurred.

Brantford reports 27 cases and 2 deaths, presenting in this particular an illustration of the best notification of the disease we have.

With none of the diseases is notification so greatly neglected, the assumption being that the Board of Health will do nothing but record it. The peculiar character of the soil and sub-soil of Brantford makes the pollution of well waters so general that these autumn typhoids will never cease until all wells are closed.

Hamilton and Toronto report respectively 16 and 18 cases, which would seem to be wholly sporadic, while not a single case or death is reported from Ottawa. The balance of cases are distributed through some 35 municipalities. Undoubtedly the high ground waters, after the abundant summer rains

and the cool weather, has been inimical to the development of this disease.

The same month in 1902 had 54 deaths, as compared with 33 in this.

Prevalence of Tuberculosis. Reference through the press has been already given to the notably less number of deaths from Consumption reported to October 31st, 1903, than in the preceding year, when the rate had fallen. The figures as published were, respectively : 1902—1,869 deaths. 1903—1,766 deaths.

The total figures, however, only serve to accentuate what has occurred month after month and year after year, viz., the relatively enormous toll which this disease of house life takes in every country and from every class. Nothing can be stronger than the following extract from the Medical Health Officer of one of our towns, accompanying the circular letter sent out some days ago, asking for various returns :

These facts cause us to look in every direction for anything extending or seeming to extend hope to us. Amongst such I have noticed recently that the Secretary of State for the Home Department in England is dealing with the proposed standards of ventilation for factories, presented in a manual from the Society of Medical Officers of Health. This has been supported by representatives from the National Association for the Prevention of Consumption.

It will be remembered that the absence of any definite provisions for the ventilation of factories was referred to in the paper on "Sanitation of Factories," presented at the Peterborough Health Officers' meeting by one of the Provincial Factory Inspectors. If to this fact we add such obvious lessons as are taught by the returns regarding diphtheria in the Province since the schools opened in September, we have brought home to us once more what we have before taught and re-taught the crying need in Canada, as elsewhere, of fresh air in homes, in schools, and in the workshops. The fact that ours is a cold climate for a few months in winter creates the primary difficulty; but after all the recognition of the evil is the first step towards supplying its remedy. It may be true that architects are not inventive or progressive in their methods, but with them, as with all other matters, a real demand will always be supplied; and the demand must come from the people everywhere,

for what, in a word, means more Oxygen.

If one discusses the problem of fresh air and ventilation with a school principal, or even the head of our primary or secondary schools, with the everyday architect, or even physician, we find the general principle accepted by all as desirable, with, in almost every case, 1st, a lack of knowledge of the positive evils due to the lack of fresh air; 2nd, An almost inseparable inertia in this matter of any attempts at remedies; 3rd, And an indifference as regards results of existing conditions as affecting the individual or public health.

In the recent numbers of the British Medical Journals have appeared a series of papers read at the British Medical Association on diseases of the upper respiratory organs. While they dealt with diseases rather than inducing causes, they have presented such a comprehensive array of facts with regard to the specific infections and their modes of entrance to the system, as well as the marvellous consequences resulting therefrom, that it has appeared to me of the highest importance that their bearing upon this question of supreme importance, fresh air, should be re-stated, if not stated anew.

The President, Patrick Watson Williams, M.D., in his introductory remarks, urged the supreme importance in diseases of the larynx, of a knowledge of the laryngoscope, even by the general practitioner. He must not wait if he expects a cure for the gross manifestations of a laryngeal tuberculosis, and so with other local diseases.

The paper by Sir Felex-Lemon dealt with "Operative Treatment of Malignant Diseases of the Larynx," which was followed by one on "Suppurative Middle Ear Disease," from the operative standpoint, in which reference was naturally made to the diseases, such as scarlet fever and influenza.

This was followed by a very important discussion on "The Upper Respiratory Tract as a Source of Systemic Infection." This has been somewhat fully dealt with before at our meetings, but, quoting the opening remarks of F. de Haveland Hall, M.D., from a paper in 1897:

"Before entering upon a description of the nose and throat affections of the acute specific diseases, I would like to accentuate the extreme importance of the nose and throat as the chief portals of entrance of the poisons, whatever they may be, which give rise to these diseases."

He further adds: "Indeed, until particulate organisms had been proved to be the cause of diseases, there was nothing

more than a vague idea that certain wells, for instance, might cause sore throat, or headache. Now we are in a position to demonstrate the route taken by these organisms." He then pointed out by several illustrations that the respiratory tract was in some cases the source of primary infection of typhoid.

Especially is this tract the way by which influenza enters the system, especially by the naso-pharyngeal space, and especially by the vehicle of enlarged adenoid vegetations and enlarged tonsils.

Whooping Cough, scarlet fever and diphtheria, he points out, as being with measles, practically all contracted by the upper respiratory tract; and incidentally he points out how convalescents and nurses should have their secretions tested before mingling with the public, as it has been shown that some 20 per cent. of persons attending about the sick have bacilli in their throats. He points out the real danger of infection when the nasal and buccal cavities have had their mucous membranes lacerated during operations, and tells of how a house physician had been frequently exposed, but took scarlet fever three days after he had used the galvanocautery on his nose. Similar infections after operation are referred to, and he points out how suppurative endocarditis and pneumonia have been induced in the same manner.

Of all the tracts by which the system is invaded, Dr. Hall considers the tonsil and the nose common, and especially refers to staphylococcus and streptococcus infections of the throat glands, and thence the general system, and erysipelas.

He refers to Guy's Hospital Reports to show that primary nasal tuberculosis is much commoner than was formerly supposed. Similarly laryngeal phthisis is at times primary, though most usually secondary.

The tonsil, he points out, is a common seat for latent tuberculosis, and, following Drs. Doellafey and Walsham, he points to the tonsil as the way of tubercular infection of the glands of the neck. He urges the removal for the fear of infection of enlarged and honey-combed tonsils.

He then concludes this list of dangers by the more general reference to "pulmonary tuberculosis," which, he says, is essentially "a filth disease," that is, it depends upon impure air. He says the aerial dangers are three:

1st. The presence of bacilli of tuberculosis, the primary cause.

2nd. Dust in the air.

3rd. Gas impurities.

He says dust, and especially mineral

particles (e.g., in slow-cultures phthisis), damage the epithelium of the air-passages. While the gaseous impurities, especially carbonic acid, by diminishing the protective power of the lymphatic glands, favors the growth of bacilli.

Following this most comprehensive resume, Dr. Iahson Horne, of the Metropolitan Ear, Throat and Nose Hospital, took up the subject, and entered more especially into the subject of tuberculous infection by the Upper Respiratory Tract.

1st. There is primary infection of the tract.

2nd. And oftener by infection with sputum from the lungs. This is nearly always true with laryngeal phthisis.

3rd. Cavities in lungs have formed by the time ulceration of the larynx occurs.

4th. The larynx is never affected with initiary tuberculosis of the lungs.

Following this paper, Dr. J. L. Goodale, Boston, dealt especially with the tonsils as being the seat of saprophytic growths, and their effect upon general health through absorption of their toxins.

Other papers elaborating the subject were presented.

I would remark incidentally that, with all other causes referred to, not a single paper referred to the physical condition in the respiratory mucous membrane through lack of house moisture, which, in my opinion, plays in America with the common mode of hot-air, heating a probably more important part in inducing infection through a congested mucous membrane than any other single cause.

But if we have learned anything from this symposium, it would appear to be that of all these infections with which people in temperate climates are inoculated, at least 90 per cent. are directly brought about through the medium of house atmospheres.

Observe the universal prevalence of the pus germ in the nasal discharges, the presence of streptococci in some —

per cent. of all diphtheritic throats, of the presence, as in the swabs taken in the Ottawa Infectious Disease Hospital, of diphtheria bacilli in 12 per cent. of all admissions for scarlet fever.

Of the incidental complications of both these diseases with measles and chicken-pox, and the very common prevalence of the pneumococcus of pneumonia, and the constant transmission of influenza through air-transmitted germs. Recalling all the facts, we would say that if we could eliminate the infections by way of the respiratory tract, we could practically banish the common infections from our midst.

If these, gentlemen, be the facts, it seems incumbent upon us to once more organize and prepare for a crusade, along the lines already referred to, with a view to a practical transformation of house constructions, heating and ventilation, as applied to factories, schools and public buildings, while aiding through every means at our command the improvement of the air of our houses.

To this end it has ben thought proper to try and arrange a comprehensive set of experiments on schools, factories, and public buildings associated with work in the laboratory, with a view, not to discerning any specially new facts, but to actually bring home to our own community the situation as it actually exists; and in order that the lessons might be taught again, as Dr. Williams, the President of the Section of the Congress, remarks, the truth of Ovid's lines, regarding things in time:

Principies obsta, sero medicina paratur,
Cum mala per longas invaluere meras,

or,

Resist the young disease, who stays too long,
His leech perchance will find the foe too strong.

All of which is respectfully submitted.

P. H. BRYCE,

Secretary.

Sept. 10th, 1903.

CHAPTER IV.

QUARTERLY REPORT OF SECRETARY.

Mr. Chairman and Gentlemen of the Provincial Board of Health:

The autumn term came in finding the Province, after a cool summer, remarkably free from the common epidemic diseases, there having been, even with the deaths from diarrhoea, common to August, a death rate of 1,992, or 12.5 rate per 1,000. Of these 84 only were due to the six diseases dealt with under the Public Health Act, while even consumption was lower than usual, but nearly double all the rest. Smallpox was almost wholly absent; but diphtheria, in its distribution rather than the number of cases, was ominous of an increase with the opening of the schools. Such has proved to be the case.

With 27 municipalities reporting 122 cases and 24 deaths for August, we find it increasing to 38 municipalities, 240 cases and 30 deaths in September, while the returns for October up to date from 52 municipalities gave 464 cases and 54 deaths. Unfortunately, various communications by letter for November indicate its continued appearance, but, where we have the information supplied, indicated so thorough a realization on the part of health authorities or their duties under the circumstances of advanced methods for dealing with outbreaks, I cannot do better than refer to some of these in detail.

We may refer, first, to Toronto, where the cases have run up from 51 in August to 118 in October, with 14 deaths. In reply to a circular letter sent out, the Medical Health Officer has supplied the following report of progress: Of 770 cases which had occurred to the end of October in the city, 445 had been treated in hospitals, or 57.9 per cent. In a letter accompanying the report it is stated that the extension to the Isolation Hospital is being rapidly completed, and will be ready for occupation within three months' time, and will have accommodation for 100 more beds, in addition to the 80 in the present building. The communication further states that a Medical Inspector of Schools has been appointed, who is following up the suspects from the school rooms.

Next in importance to Toronto is the report from Ottawa. Up to date of October 31st the Medical Health Officer reports 319 cases and 19 deaths and has stated that since March all

cases have been treated in hospital. The value of hospital treatment may fairly be estimated by a comparison of a city with only 57 per cent. treated in hospital and one in which all for nine months have been so treated.

The rate per cent. of deaths in Toronto, with 57.9 per cent. treated in hospital, is 12.72 per cent., while that in Ottawa was only 5.9 per cent. for the whole ten months, and of these 9 out of a total of 19 deaths occurred during January, when only a part were treated in hospital.

An even more satisfactory report has been received from Guelph, where for years it has been the custom the remove almost all diphtheria cases to hospital. There 9 cases were reported without a single death.

We have, however, the obverse side of the shield, where the absence of any contagious disease hospital presents the spectacle of one of the best cities in the Province from the standpoint of site and general sanitation having 94 cases of diphtheria in a single month, viz., London. A number of fatal cases occurred during January and February, after which cases occurred first mild, but almost steadily increasing in number and virulence, as:

June	23.1
July	35.2
August	18.4
September	39.4
October	94.8

It is but a repetition of what one municipality after another has shown in past years, illustrating the cost in life, time and money to the population who fail to respond to the most scientific methods at our command for stamping out disease. Another return received from Ingersoll may serve to make this fact yet more apparent. But one case was reported in July, and none in August, but with the opening of the schools, September has 12 and October 16 cases. The health officer says the cases occurred largely in children of the Central Public School. Strict precautions were taken by the Board and its officers, and the entire building was disinfected, and at time of writing but four houses were under quarantine. We naturally ask, Was the regulation requiring the inspection for a week of the children of the infected room carried out?

The Medical Officer further states: "The question of an isolation hospital was fully discussed at the first meeting after we received notice of the new regulations, and the Board decided that our municipality was not in a position to provide such an institution." This, it may be remarked, is in a town where private physicians have found it good practice to establish at least two private hospitals.

This efficient officer directs the attention of the Provincial Board to the fact that in the nature of things the work of local health officers "must be somewhat unsatisfactory," and after pointing out the obvious reasons for this, recommends the establishment of county or district with their Medical Health Officers, who would devote their whole time to the duties of the office.

How the local struggle is kept up by Medical Health Officers at all, under such circumstances, is a constant source of wonder to your Secretary, and nothing serves better to illustrate these self-sacrificing efforts than what one sees so often occurring.

The Brantford Board and its officers has for years fought for proper hospital accommodation, and, not content with a small annex of the General Hospital, is now arranging for a separate building on its own grounds. But this progressive work is not limited to cities, as the report of our Canadian medical novelist and poet, Dr. Algie, of Caledon, shows. In his report to his Board he points out the requirements of the regulations, and advises the propriety of having a tent in readiness for cases which might occur. He says: "It seems reasonably certain that the prime necessity will arise, and most soldiers who may be called upon to act any minute prefer to have their arms in readiness,

rather than commence looking for their guns when the enemy is upon them." On the other hand, an outbreak at Chesley aptly illustrates the way by which diphtheria is spread. The letter from the Town Solicitor referred to in the correspondence would seem to indicate that occasionally a physician is found who through ignorance of either the law or medicine becomes the chief agent through whom an outbreak gains headway. In all, 23 cases occurred in this town, within thirteen days, the dissemination being principally apparent by means of a milk supply. Similar early neglect on the part of physicians at Kemptville would seem to be responsible for the presence of the disease there.

Following is the report by Dr. Hodgetts, Medical Inspector, on smallpox for the quarter.

All of which is respectfully submitted.

P. H. BRYCE,

Secretary.

Nov. 18th, 1903.

REPORT ON SMALLPOX.

For Quarter ending September 30th, 1903.

(By C. A. Hodgetts, M.D., Inspector.)

The marked decline in the number of cases of smallpox for the three months ending September 30th ult., is most gratifying, the monthly returns being as follows:

	Municipalities.	Cases	Deaths.
July	11	29	1
August	4	15	1
September.....	2	14	0
Totals.....	17	58	2

The distribution of the cases was as follows:—

County.	Municipality.	July.		August.		September.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Bruce	Walkerton.....	10	1				
Carleton.....	Ottawa.....	1					
Frontenac.....	Kingston.....	1					
Halton.....	Esquering.....	1					
Kent.....	Romney.....	1		3	1		
Lambton.....	Oil Springs.....	1		1			
	Forest.....	1		1			
Lennox and Addington.....	Dawn.....	1					
Middlesex.....	London.....	5					
Prescott and Russell.....	Alfred.....	1					
Prince Edward.....	S. Marysburg.....	5					
Stormount, Dundas and Glengarry..	Winchester.....	2					
Nipissing.....	Widdfield.....			10			
Algoma.....	Michipiceton and Wawa.....					13	
Thunder Bay.....	Needing.....					1	

It will be noticed that the disease occurred in 15 municipalities, in seven of which there was only one case, a fact which speaks well for the prompt and effective manner in which these municipalities enforced the regulations. Of these 15 municipalities, three of them were cities, viz., Ottawa, 1; Kingston, 1, and London, 5 cases.

As the outbreak at Wa Wa was in an unorganized municipality, this Board assumed control, and placed Dr. A. Anderson in charge of the patients. The outbreak originated from a person who contracted the disease while on a visit to St. Anne, Quebec, in the latter part of August. The doctor reports the total number of cases to have been 13.

The origin of the outbreaks occurring during the quarter has been found to be due, in nearly every instance, to mild cases, which were infected at points outside the Province, some in the Province of Quebec, and others in adjoining States, and in every instance the person so infected had been unvaccinated.

Referring again to the question of vaccination, it is found that in every instance where I have made personal investigation that there has been no evidence of vaccination, and it is found that there exists as much difficulty to enforce vaccination as there did five years ago, indeed, the indifference and

opposition of the public is lamentable, and it appears that the present law is unwieldy and not adapted to modern methods. The public object to the expense of stamping out smallpox, but when offered the only means known in preventative medicine for reaching this desired end, too often it is found that even those in high places, those to whom we look for "first aid" in this work, will oppose in every possible way the enforcement of vaccination. If there is to be an end to the progress of this mild smallpox, some measures should be adopted to enforce vaccination in our schools and workshops.

The indications for a general appearance of the disease this winter are, I am pleased to say, not good; there still exists, however, a centre to the east, chiefly in the section of Frontenac, Lennox and Addington, and adjoining townships, in which I am of the opinion mild cases have existed during the summer, the infection having remained undiscovered since last winter, and it behoves local authorities and physicians generally to observe a strict watch for all cases of "chickenpox," and to isolate all suspicious cases.

Respectfully submitted,

CHAS. A. HODGETTS,

Inspector.

Toronto, Nov. 18th, '03.

CHAPTER V.

QUARTERLY REPORT OF SECRETARY.

By Dr. C. A. Hodgetts.

To the Chairman and Members of the Provincial Board of Health:

Gentlemen,—Before presenting this, my first report as Secretary of the Board, I beg your indulgence for a few moments to refer to the great loss this Board has sustained, and not only this Board, but the cause of Public Health throughout the Province, by the retirement of our esteemed confrere and well-known public servant, Dr. Peter H. Bryce, from the duties of the office, which through the kindness of the Honorable Provincial Secretary I have been called upon to fill. His long tenure of office and the marked energy he has on every occasion displayed in either the initiation of work or the carrying out of sanitary investigations and other works of public health for the benefit of the citizens of this Province have placed him in the front rank of sanitarians on this continent. Indeed, only as years pass by will the public realize what they owe to his well applied and highly scientific work in all that relates to preventative medicine.

While regretting his personal loss, yet it affords much pleasure to know that Dr. Bryce is entering upon a field of work which offers unbounded opportunities for the exercise of his many rich talents, and that the benefits to accrue will be felt over the length and breadth of this fair Dominion.

As successor to one with whom it has been my privilege to associate for some years, I naturally feel that I enter upon the duties of office as a somewhat raw recruit succeeding an old and well-tried veteran, and I, therefore, trust for your kind indulgence in the discharge of duties which to my respected predecessor have become mere matters of routine.

I can, however, assure you as a Board that I shall be pleased at all times to furnish you with the fullest information in my possession, and my one aim will be to advance the progress of sanitary science in this Province, so that she may maintain the proud position of the premier authority in public health work on this continent, and to which we are largely indebted to Dr. Bryce.

The returns for contagious diseases for the fourth quarter of the year 1903 are as follows:

	Cases.	Deaths
Smallpox.....	25	....
Scarlatina.....	749	38
Diphtheria.....	1,491	202
Measles.....	....	7
Whooping Cough.....	....	35
Typhoid.....	407	97
Tuberculosis.....	....	475

And that an intelligent comparison may be made of the year's returns as given in the monthly bulletin of the Board, the following tables are submitted. A showing the monthly returns, and B the returns by quarters:

Table A.—Cases and Deaths for the year 1903, by Months. Average Population Reporting 1,998,098, or 92 per cent., the Death Rate being 12.6 per 1,000 per annum.

—	Smallpox.		Scarlatina		Diphtheria.		Measles.		Whooping Cough.		Typhoid.		Tuber- culosis.	Deaths from all causes.	Rates per 1,000
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Deaths.		
January	196	10	500	90	510	59	6	9	65	25	176	176	176	2,150	12.8
February	152	4	550	104	200	27	7	7	60	20	163	163	163	2,176	13.4
March	175	1	515	95	228	24	2	6	60	18	221	221	221	2,429	14.7
April	122	2	295	61	203	28	3	19	57	19	195	195	195	2,236	13.4
May	66	2	391	43	205	22	4	18	48	22	132	132	132	2,193	13.3
June	30	1	297	52	191	26	14	20	42	13	175	175	175	1,848	11.3
July	29	1	187	26	209	36	5	11	47	18	139	139	139	1,873	11.5
August	15	1	103	14	122	24	5	12	115	32	147	147	147	1,992	12.5
September	10	1	100	6	240	30	11	11	111	37	149	149	149	2,028	11.6
October	7	1	232	9	541	66	1	17	178	43	169	169	169	2,120	12.2
November	5	1	279	9	476	64	5	14	109	30	137	137	137	2,081	12.1
December	13	1	231	20	474	72	1	4	120	24	169	169	169	2,141	12.5
Total	820	21	3,677	529	3,599	478	53	148	1,012	298	2,072	2,072	2,072	25,267	

Table B.—Returns of Contagious Diseases by Quarters.

(1903).

	Diseases.	Cases.	Deaths.
First Quarter.....	Smallpox.....	523	15
	Scarlatina.....	1,565	289
	Diphtheria.....	938	116
	Measles.....		15
	Whooping Cough.....		20
	Typhoid.....	185	63
	Tuberculosis.....		560
Total.....		3,201	1,072
Second Quarter.....	Smallpox.....	218	4
	Scarlatina.....	983	156
	Diphtheria.....	599	76
	Measles.....		21
	Whooping Cough.....		57
	Typhoid.....	147	51
	Tuberculosis.....		662
Total.....		1,947	967
Third Quarter.....	Smallpox.....	54	2
	Scarlatina.....	390	46
	Diphtheria.....	571	90
	Measles.....		10
	Whooping Cough.....		34
	Typhoid.....	273	87
	Tuberculosis.....		435
Total.....		1,288	704
Fourth Quarter.....	Smallpox.....	25	
	Scarlatina.....	739	38
	Diphtheria.....	1,491	202
	Measles.....		7
	Whooping Cough.....		35
	Typhoid.....	407	97
	Tuberculosis.....		475
Total.....		2,662	854
Total contagious diseases for year.....		9,098	3,597

N. B.—Notification of typhoid fever cases is neglected, and this does not represent the extent of the disease.—SEC.

Smallpox. A study of these tables shows that during the year there was a noticeable decrease in the number of smallpox cases, the prevalence being more marked during the first quarter of the year, when 523 cases were reported, with 15 deaths. The decline was most marked after the month of April, and the minimum was reached in the month of October, when only five cases occurred.

Scarlatina. The totality of this disease for the year was 3,677 cases, with 529 deaths, or a case mortality of 14.38 per cent. The disease was more markedly prevalent during the first quarter, when 1,565 cases were reported, with a mortality of 18.46 per cent., there being an apparent relationship between the case occurrence and the mortality rate.

The disease declined very considerably the third quarter, during which the school holidays occurred, reaching a minimum in the month of September, the increase of cases corresponding with school attendance during the last quarter of the year,

Diphtheria. Although this disease continues to manifest its power and virulence from year to year, yet to the medical practitioner it has lost its effect of dread, owing to our increased experience in the use of antitoxine. For it is quite manifest that the correct line of treatment to pursue is to use large, and often repeated large injections of the remedy at much shorter intervals than was previously the custom. Where this principle has directed the line of treatment carried out in this Province, I am assured the results have been most satisfactory, and cases which heretofore under the old line of treatment would have succumbed to the disease, have made a sure and often rapid recovery.

The insidious nature of the infection, its often continued presence in the mouth and nasal passages, after all local and constitutional disturbances have subsided, must always add to the difficulties of all precautionary measures. This one fact, however, is emphasized that no case should be released from

quarantine until bacteriological examination of at least two swabs have negatived the presence of the Klebs Loeffler bacillus, and by preference these swabs should be taken by a medical officer of the Local Board of Health.

During 1903 there were 3,599 cases with 478 deaths; a case mortality of 13.28 per cent. The fourth quarter was that of greatest prevalence of the disease, 1,491 cases being reported, with 202 deaths, representing a mortality of 13.47 per cent., which is slightly in excess of the yearly rate.

Typhoid Fever. Owing to the imperfect notification of cases of typhoid fever it is impossible to draw any conclusions as to its mortality, but, judging by the deaths returned, the year seems to have been marked by its continued presence.

Measles and Whooping Cough. These two diseases, like typhoid fever, can only be judged by the number of deaths reported. Seemingly, medical science has, up to the present, arrived at no plan where some at least of the 148 deaths from whooping cough can be prevented.

Tuberculosis. It is to be regretted that at the close of 1903, we have to report a death roll of 2,072 from tuberculosis alone, and yet public opinion has not been stimulated into ac-

tion whereby any municipality has seriously considered the advisability of providing, by means of a sanatorium, for the treatment of consumptive patients. It may be that the public are stunned by the needs of the situation and the financial demands that would have to be made. It cannot be that they are satisfied by what is being done on charitable lines only. The sooner the public realize it as essential for them to provide for the treatment of cases of consumption, as at present it is statutory they provide for the treatment of scarlatina, diphtheria, and smallpox, by hospitals erected for the purpose, at the public cost, so soon can it be said that we as a people have done our duty. The problem of the treatment of consumption is wider than the bounds of cold charity. It is one of vital and national importance; it appeals to all classes and creeds, rich and poor alike, and its treatment and control should be under municipal auspices. The principle has already been adopted by the Legislature, and it simply awaits the action of our municipalities for the successful carrying on of this most important work. Respectfully submitted,

CHAS. A. HODGETTS.

Secretary.

CHAPTER VI.

REPORT OF THE STANDING COMMITTEE ON EPIDEMICS, RE SCARLET FEVER REGULATIONS.

May 29th, 1903.

Your Committee on Epidemics, in order to render clear the bearing of the Scarlet Fever Regulations, which became an Order-in-Council on March 5th, 1903, beg leave to report that the Regulations are only intended to make the operation of the Public Health Act definite and clear in several particulars which have been hitherto somewhat imperfectly understood.

These several particular points are:

1st. That the Medical Health Officer has clearly been placed in a position to carry out the Act relating to scarlet fever and is required to report to the Provincial Board of Health failure to supply facilities therefor on the part of Local Boards of Health.

2nd. That the Medical Health Officer and not the attending physician, nor the Local Board of Health, is placed definitely in a position to determine the character of the isolation of cases as called for by the Act.

3rd. That the M. H. O. is empowered to isolate patients for a definite period of six weeks, or longer, if the circumstances require it.

4th. That the isolation to be provided is that defined under Section 106 of the Statutes, which has existed for nearly twenty years in the Act, and which states that Local Boards of Health must provide a temporary hospital for contagious diseases.

5th. That the Regulations provide that greater stringency in the matter of isolation of patients be insisted upon on the part of the Medical Health Officer.

6th. That while the Medical Health Officer is required under the Regulations to utilize such hospital accommodation as is provided under the Act, he

is, at the same time, allowed under the Statute to use his judgment in the exercise of such power.

7th. That in order that any misconception as to the meaning of the Regulations may be removed from the minds of the public and of Medical Health Officers, your committee would recommend that in the printed copy of the Regulations issued by the Board, the following foot-note be inserted:

"It was not the intention of the Provincial Board of Health in framing the Regulations to in any way limit the discretionary powers given the Medical Health Officer under the Public Health Act, in Sec. 93, Cap. 248, R.S.O."

8th. Your committee would also invite attention to the fact that efficient isolation, as facilitated by ample hospital accommodation, has materially lessened the death and sickness rates and effected immense savings in many ways. The statistics given by the Secretary in his quarterly report admirably show this, and also show the great advances made in other countries in providing the municipal accommodation for which we are now striving.

9th. Your committee would like that the opposite side of the question should be presented to the public, the obligation of the body politic to provide facilities so that the wage-earners may be allowed to carry on their work without endangering the lives and health of other wage-earners.

All of which is respectfully submitted,

J. J. CASSIDY,

W. OLDRIGHT,

P. H. BRYCE.

CHAPTER VII.

A REPORT OF THE COMMITTEE ON EPIDEMICS RESPECTING THE HYGIENE OF BARBER SHOPS.

To the Chairman and Members of the
Provincial Board of Health of Ontario :

Gentlemen,—Your Standing Committee on Epidemics, which was instructed at the first quarterly meeting, in February of this year, to continue their efforts to secure a thoroughly satisfactory settlement of the hygiene of barber shops, desire to present the following facts for your consideration:—

It will be remembered that at the fourth quarterly meeting of this Board for 1902, hygienic regulations for barbers were recommended by this Board. These regulations had been prepared by your Committee in the hope that they would be adopted by the members of the Barbers' Protective Association of Toronto, and by other barbers throughout Ontario. Shortly after that meeting, copies of these regulations were sent to Herbert Thomson, Secretary, Toronto, for the consideration of that body.

In reply a letter and three copies of an amended schedule of rules were sent to Dr. Bryce.

The letter is as follows :

Toronto, Jan. 26, 1903.

Dr. Bryce, Secretary, Provincial Board of Health :

Dear Sir,—Enclosed you will kindly find three copies of Regulations for the Government of Barber Shops, which were adopted by the Barber's Protective Association at their last meeting, which was held Jan. 15th, 1903.

Dr. Cassidy's recommendations to the Provincial Board of Health on this subject will be found to be somewhat changed from the original, but on the whole they have been adopted by our Association.

From the standpoint of the majority of our members, these regulations should become law, instead of recommendations, and they would ask your body to use their influence to that end.

Should there be anything in these Revised Regulations you or the members of the Provincial Board of Health would like to discuss, the Executive Committee of our Association would be pleased to meet you at any time you might say.

Yours respectfully,
HERBERT THOMSON,
Secretary.

REVISED HYGENIC REGULATIONS FOR BARBERS.

Approved by the Barbers' Protective Association of the City of Toronto, Ont.

1. A barber should be clean and neat in his person and dress, and be particular in maintaining a healthful condition of the mouth and hands.

2. No person suffering from any disease of the skin, scalp, or hair should act as a barber, nor should anyone suffering from consumption, or any disease commonly known as contagious, serve in this capacity.

3. If diphtheria, scarlet fever, smallpox, measles or any other contagious disease should occur in the family of a barber, or among his friends or acquaintances, he should not nurse or visit the patients, nor in any way come in contact with them, and, if any such disease should appear in his own dwelling or boarding house, he should temporarily change his residence.

4. Persons suffering from any disease of the skin, scalp or hair, or from consumption, or persons who have recently recovered from diphtheria, smallpox, scarlet fever or other contagious disease, should not visit any barber shop or parlor, but should be attended by the barber or hairdresser at their own homes. All instruments used on such patients should be carefully disinfected after such use.

5. The floor of a barber shop should be made of hard wood, or if not so made should be covered with sound oilcloth or other impermeable floor covering. The floor of the shop should be frequently washed with hot water and soap. As a matter of ordinary routine, it should be mopped every morning with a damp woollen cloth. If the floor is to be swept, it should first be sprinkled with dampened sawdust or wet tea leaves, or oiled and then swept, in order that as little dust as possible may be raised.

6. The shop or parlor should be well aired before the day's work is begun, and it should also be ventilated during the day. The shop must never be used as a dormitory. Every barber shop should be provided with running hot and cold water.

7. The shop should be kept very clean as should also all the chairs, razors, clippers, brushes, towels and all other articles or instruments used in the business. Towels should be carefully washed and boiled, and then rinsed to remove the odor of soap.

8. Customers should be encouraged to use or have used on them, their own instruments (razors, soaps, brushes, etc.), and in the cases of persons suffering from diseases of the skin, scalp or hair, this practice should be compulsory. For operations on the dead body a barber should have instruments used only for that purpose.

Disinfection of Instruments.

9. Razors and clippers may be disinfected by dipping in a solution.

10. Hair brushes and combs should be disinfected once a day.

11. Straps should be cleaned as often as possible.

12. A shaving brush may be disinfected by being placed in boiling water.

13. Before passing from one customer to another the barber or hairdresser should thoroughly wash his hands.

14. Powder should be used by towel or hand.

15. Astringent pencil should be used and disinfected. Alum should never be used in any form.

16. In places of sponges or balls of absorbent cotton, clean towels should be used.

17. Wax put up in tubes should be used.

18. The hair dresser should remove vaseline from the vessel containing it, with a spoon.

19. Only strictly clean linen, towels, etc., should be used for each customer. If a freshly-laundried wrapper cannot be supplied for each customer, a clean towel should be used in place of the wrapper.

Respectfully submitted,

HERBERT THOMPSON,
Secretary.

A comparison of the regulations for barber shops adopted by this Board with those just read will show some important differences. The following are the points on which these regulations agree and also those in which they differ. For instance, in Hygienic Regulations for Barbers, recommended by this Board, Rule 1 reads as follows: "A barber should be clean and neat in his person and dress; should use the bath regularly, and be particular in maintaining a healthful condition of the mouth and hands." In the Revised Hygienic Regulations read above, the following words are omitted. "Should use the bath regularly."

Rule 2 of the Board's Regulations is adopted without change. It reads as follows: "No person suffering from any disease of the skin, scalp or hair should act as a barber, nor should anyone suffering from consumption, or any disease commonly known as contagious, serve in this capacity."

Rule 3 of the Board's Regulations was adopted without change. It reads as follows: "If diphtheria, scarlet fever, smallpox, measles, or any other contagious disease should occur in the family of a barber, or among his friends or acquaintances, he should not nurse or visit the patients, nor in any way come in contact with them, and if any such disease should appear in his own dwelling or boarding house, he should temporarily change his residence."

Rule 4 of this Board was also adopted unchanged. It reads as follows: "Persons suffering from any disease of the skin, scalp, or hair, or from consumption, or persons who have recently recovered from diphtheria, smallpox, scarlet fever, or other contagious disease, should not visit any barber shop or par-

lor, but should be attended by the barber or hairdresser at their own homes. All instruments used on such patients should be carefully disinfected after such use."

Rule 5 of the Board's Regulations reads as follows: "The floor of a barber shop should be made of hardwood, or, if not so made, should be covered with sound oilcloth or other impermeable floor covering. The floor of the shop should be frequently washed with hot water and soap. As a matter of ordinary routine, it should be mopped every morning with a damp woollen cloth. Sweeping is not recommended. If the floor is to be swept, it should first be sprinkled with dampened sawdust or wet tea leaves, and then swept, in order that as little dust as possible may be raised."

In the Revised Regulations the following words are omitted: "Sweeping is not recommended." The following words are added, "Or oiled," to show a method by which a floor may be swept without raising a dust.

Rule 6 of the Board's Regulations reads as follows: "The shop or parlor should be well aired before the day's work is begun, and it should also be ventilated during the day. The shop must never be used as a dormitory. Every barber shop should be provided, if possible, with running hot and cold water." In the Revised Regulations the words, "if possible" are omitted.

Rule 7 of the Board's Regulations reads as follows: "The shop should be kept very clean, as should also all of the chairs, razors, clippers, brushes, towels, and all other articles or instruments used in the business. Towels should be carefully washed and then rinsed to remove the odor of soap." After the words washed, the words "and boiled" were introduced.

Rule 8 was adopted unchanged. It reads as follows: "Customers should be encouraged to use, or have used on them, their own instruments (razors, soaps, brushes, etc.), and in cases of persons suffering from diseases on the skin, scalp, or hair the practice should be compulsory. For operations on the dead body a barber should have instruments used only for that purpose."

Disinfection of Instruments.

Rule 9 of the Board's Regulations reads as follows: "Razors and clippers may be disinfected by boiling for five or ten minutes in soapy water, or in water containing a little carbonate of potassium. For this purpose the instruments should be laid on an enamelled or galvanized metal dish, and be completely

covered by the water. After boiling they should be cooled in cold water and carefully dried. Steel instruments boiled in the carbonate of potassium solution are not liable to rust."

In the revised version this rule appears as follows: "Razors and clippers may be disinfected by dipping in a solution."

Rule 10 of our Regulations reads as follows: "Hair brushes, combs, and straps may be disinfected by placing them in a small closet or case which closes hermetically (is airtight), in which is kept a saucer constantly filled with the 40 per cent. solution of formalin, about one ounce of formalin to each cubic foot of space. It is recommended that all instruments be laid on racks or trays in this closet after using. If this is done, every customer can have a thoroughly disinfected instrument for use in his case."

In the revised version it is as follows: "Hair brushes and combs should be disinfected once a day. Straps should be cleaned as often as possible."

Our 11th rule reads as follows: "Brushes and combs will need cleaning with bran or clay and hot water at intervals." In the revised version this is omitted.

Our 12th rule reads as follows: "Shaving brushes may be entirely dispensed with, and a puff of cotton used instead, which can be destroyed after one using. A shaving brush may be disinfected by being placed in boiling water for five minutes before using." In the revised version it reads: "A shaving brush may be disinfected by being placed in boiling water."

Our 13th rule reads as follows: "Before passing from one customer to another, the barber or hair dresser should thoroughly wash his hands. He should use warm water and carbolic soap, or one containing mercuric chloride." In the revised version it reads: "Before passing from one customer to another, the barber or hair dresser should thoroughly wash his hands."

Our 14th rule reads as follows: "The powder puff should be replaced by the powder blower or by a ball of wadding. The wadding should be thrown away after one using." In the revised version this reads: "Powder should be used by towel or hand."

Our 15th rule is as follows: "A stick of alum should never be used to stop the flow of blood. A small piece of alum after being used on a customer should be thrown away. Some prefer burnt alum, applied on cotton, which can be thrown away after one using." In the revised rules it reads: "Astringent pencil should

be used and disinfected. Alum should never be used in any form."

Our 16th rule is as follows: "Sponges should not be used in a barber's work, because they cannot be cleaned as a towel may be. In place of sponges, towels or balls of absorbent cotton should be used." In the revised version it reads: "In place of sponges or balls of absorbent cotton, clean towels should be used."

Our 17th rule reads. "Toilet wax should not be used indiscriminately. Each person should have his own toilet wax." In the revised version it reads: "Wax put up in tubes should be used."

Our 18th rule reads: "The hair dresser should remove vaseline from the vessel containing it with a spatula or spoon, and not by inserting his possibly contaminated fingers into the vessel." In the revised version it reads: "The hair dresser should remove vaseline from the vessel containing it with a spoon."

Our 19th rule, which was adopted unclassified, reads as follows: "Only strictly clean linen towels, wrappers, etc., should be used for each customer. If a freshly-laundried wrapper cannot be supplied for each customer, a clean towel should be used in place of the wrapper."

Your Committee, after consideration of the recommendations, found that the only important differences between the rules formulated by the Board and those suggested by the Barbers' Association referred to the methods of disinfecting the cutting instruments and tools used in a barber's trade. In our published regulations we had advised (see Rule 9) that "razors and clippers may be disinfected by boiling for five or ten minutes in soapy water, or in water containing a little carbonate of potassium." Now, this rule is correct, and the edges of cutting tools so disinfected are not spoiled by the process. It appears, however, that this method of disinfecting razors and clippers would be irksome, and would require too much time for barbers, who must be expeditious in their methods and movements in order to please customers. It is quite certain, nevertheless, that the barbers' customers should be exposed to the danger of infection from razors and clippers which are not properly disinfected.

It is equally clear that hair brushes, shaving brushes, and combs require antiseptic treatment regularly.

Desirous of obtaining reliable information as to the most expeditious and cheapest methods of procuring the disinfection of the tools and instruments used in the barbers' trade, your Committee requested Dr. J. A. Amyot, Bacteriologist of this Board, to make such

experiments and tests as would serve to elucidate these points.

These experiments have been made, and his reports to your Committee are herewith submitted.

Report of Dr. J. A. Amyot.

Experiments as to the Value of Certain Antiseptics in the Sterilization of Brushes and Cutting Instruments.

Two separate sets of experiments were made, one with the brushes, the other with the instruments. For cultural purposes, a specially nutritive medium—somatose-bouillon—was used. The following were the results:

Brushes—

Three brushes that had been in general use were taken.

1st. Cultures were made in broth from the hair of each brush. These all showed vigorous growth. No attempt was made to isolate any of the varieties.

2nd. Each brush was washed in a strong sodium carbonate and soap solution, and rinsed in tap-water. Brush (a) was then laid aside without other treatment. Brush (b) was soaked in a 1 in 20 carbolic acid solution for 10 minutes, and laid aside to dry. Brush (c) was placed in a tight box and exposed for 15 hours to the vapors of Formaldehyde, generated by evaporating from a large, shallow dish of formaline (40 per cent.) (Box 12 x 15 inches.)

On the following day cultures were made from all three brushes, and incubated for 72 hours at 37 degrees C. The formalized brush was the only one to show no growth.

This was repeated with the same result.

(Formaldehyde sterilized completely the brushes exposed. Carbolic acid, 1 in 20 of water, did not. Plain washing did not, either.)

Instruments—

Three all-metal knives were sharpened and subjected to the following treatment, after a previous sterilization by steam under pressure (two atmospheres).

All the knives were infected with a vigorous culture of *staphylococcus pyogenes aureus*, grown on nutritive agar. These were then dried in the air, and control cultures made.

No. 1 was then put under a stream of boiling water for 30 seconds, cooled with cold, sterilized water, and placed in a broth culture tube.

No. 2 was dipped in carbolic acid (95 per cent.) for three seconds, and washed in sterilized running water and put in a broth tube.

No. 3 was put into the formaline box with the brush spoken of above for 15 hours, washed off in water (sterilized), and placed in a broth tube.

All were given 72 hours cultivation (the knives being taken out after 24 hours of electrolization), with the following results:

No. 1 (hot water)—Sterile.

No. 2 (carbolic)—Good growth.

No. 3 (formaline)—Good growth.

The experiment was repeated, with the same results.

After this a series of experiments were carried out to test the use of pure carbolic acid at different lengths of exposure.

The knives were infected and dried, as in the first experiment. They were then dipped into pure carbolic acid (95 per cent.) for 10, 15, 30, 60, 90, 100 and 180 seconds, and then washed in sterilized water and placed each in a broth tube. The 10, 15, 30, and 60 seconds' ones all showed growth, the 90, 120, and 180 seconds' ones were sterile, though 72 hours were given them to grow in. (Knives removed after 24 hours.)

On repeating the experiment the same results were obtained.

Finally, copper wire, sterilized and then infected with the same culture, was exposed to formaldehyde vapors for 15 hours. This was sterile after 72 hours.

The pure carbolic acid had no visible action in the knives. It sterilizes after 90 seconds' exposure.

The boiling hot water would seem to be the most satisfactory.

The tests were severe, because the organisms were protected by the agar.

No experiments were done with spore-bearing organisms.

JOHN A. AMYOT.

Report on the Use of Alcohol as a Germicidal Agent in the Sterilization of Steel Instruments.

To the Provincial Board of Health of Ontario:

Gentlemen,—I beg to submit report on above subject. The work was undertaken at the request of the Committee on Epidemics.

Knives, cleaned and sharp, were infected with a vigorous culture of *staphylococcus pyogenes aureus*, and dried in the air; and then exposed, some for 3 min., 5 min., 8 min., 10 min., 15 min.,

20 min., 30, 45, and 60 min., to the action of 95 per cent. alcohol, and then allowed to dry in the air. Inhibition of growth commenced with the 20 min. exposure. Only a slight growth was obtained after 30 min. exposure, but none whatever at the 45 and 60 min. exposures. From these exposures it would seem justifiable to look for disinfection of instruments after 45 minutes' exposure to 95 per cent. alcohol for non-spore bearing bacteria.

JOHN A. AMYOT.

Laboratory of the Provincial
Board of Health, Biological
Building, Toronto, Nov. 19, 1903.

Dear Dr. Cassidy :

In compliance with your request, a series of experiments were undertaken to determine the value of Spiritus Saponatus Kalinus (2 parts soft soap to one part of 95 per cent. alcohol, perfumed with lavender), as a sterilizing agent, where non-spore bearing organisms were in question.

Instruments infected with a vigorous culture of the staphylococcus pyogenes aureus were after drying placed in the solution for periods of 3, 5, 8, 10, 12, 15, 20, 25, 30, 35, 40, and 50 minutes respectively. These were then washed in sterile water and incubated in nutrient broth. Care was taken about electrolysis. The ten minute one showed no growth. All those exposed longer showed no growth. The eight minute one showed very slight growth.

From these experiments I would say that 15 minutes' exposure to the action of Spiritus saponatus kalinus would be sufficient to sterilize instruments (cutting) when non-spore bearing organisms are under consideration.

Yours truly,

JOHN A. AYMOT.

Having considered such criticisms of the Toronto Barbers' Association as appeared to be valuable and worthy of adoption, as well as the experiments made by Dr. Amyot, your committee wish to report the following amended regulations for barbers, and would advise that they be adopted :

(1) A barber should be clean and neat in his person and dress, should use the bath regularly, and be particular in maintaining a healthful condition of the mouth and hands.

(2) No person suffering from any disease of the skin, scalp, or hair should act as a barber, nor should anyone suffering from consumption, or any disease commonly known as contagious, serve in this capacity.

(3) If diphtheria, scarlet fever, smallpox, measles, or any other contagious disease should occur in the family of a barber, or among his friends or acquaintances, he should not nurse or visit the patients, nor in any way come in contact with them, and if any disease should appear in his own dwelling or boarding house, he should temporarily change his residence.

(4) Persons suffering from any disease of the skin, scalp, or hair, or from consumption, or persons who have recently recovered from diphtheria, smallpox, scarlet fever, or other contagious disease, should not visit any barber shop or parlor, but should be attended by the barber or hair-dresser at their own homes. All instruments used on such patients should be carefully disinfected after such use.

(5) The floor of a barber shop should be made of hardwood, or, if not so made, should be covered with sound oilcloth or other impermeable floor covering. The floor of the shop should be frequently washed with hot water and soap. As a matter of ordinary routine, it should be mopped every morning with a damp woollen cloth. If the floor is to be swept, it should first be sprinkled with dampened sawdust or wet leaves, or oiled, and then swept, in order that as little dust as possible may be raised.

(6) The shop or parlor should be well aired before the day's work is begun, and it should also be ventilated during the day. The shop must never be used as a dormitory. Every barber shop should be provided with running hot and cold water.

(7) The shop should be kept very clean, as should also the chairs, razors, clippers, brushes, towels, and all other articles or instruments used in the business. Towels should be carefully washed and boiled and then rinsed to remove the odor of soap.

(8) Customers should be encouraged to use, or have used on them, their own instruments (razors, soap, brushes, etc), and in the case of persons suffering from diseases of the skin, scalp, or hair, this practice should be compulsory. For operations on the dead body, a barber should have instruments used only for that purpose.

(9) (a) Razors, clippers, and scissors may be disinfected by being boiled for ten minutes in soapy water or in water containing a little carbonate of potassium. For this purpose the instruments should be laid in an enamelled or galvanized metal dish, and be completely covered by the water. After boiling they should be quickly cooled in cold water and carefully dried. Steel instruments

boiled in the carbonate of potassium solution are not liable to rust.

(b) Razors may be disinfected by being held in a stream of boiling water for thirty seconds. They should then be put into cold water for a short time and carefully dried.

(c) Razors, clippers (disarticulated), and scissors may be disinfected by being exposed in a dish for fifteen minutes to the action of Hebra's spirit of soap, Spiritus Sapontaus Kalinus. They should then be rubbed dry.

(d) Razors, clippers (disarticulated), and scissors may be disinfected by being exposed in a dish to the action of 95 per cent. alcohol for forty-five minutes. They should then be rubbed dry.

(10) Hair brushes, shaving brushes, combs, and straps may be disinfected by being first washed in a strong solution of sodium carbonate and soap, and afterwards placed in a small air-tight closet or case, in which is kept a saucer constantly filled with formalin, about one ounce of formalin to each cubic foot of space. It is recommended that all instruments be laid on racks or trays in this closet. This disinfection should be carried on every night.

(11) Shaving brushes may be entirely dispensed with, and a puff of cotton used instead, which can be destroyed after one using. A shaving brush may be disinfected by being placed in boiling water for ten minutes before using.

(12) Before passing from one custom-

er to another, the barber or hairdresser should thoroughly wash his hands.

(13) The powder puff should be replaced by the powder blower, fresh ball of absorbent cotton or clean towel.

(14) A stick of alum should never be used to stop the flow of blood. A small piece of alum, after being used on a customer, should be thrown away. Astringent pencil may be used if after use it is disinfected in hot water.

(15) Sponges should not be used in a barber's work, because they cannot be cleaned as a towel may be. In place of sponges, towels or balls of absorbent cotton should be used.

(16) Toilet wax should not be used indiscriminately; each customer should have his own toilet wax, which should be kept in a tube.

(17) The hairdresser should remove vaseline from the vessel containing it with a spatula, or spoon. Preferably, vaseline put up in collapsible tubes should be used by hairdressers.

(18) Only strictly clean linen—towels, wrappers, etc., should be used for each customer. If a freshly-laundered wrapper cannot be supplied to each customer, a clean towel should be used in place of the wrapper.

All of which is respectfully submitted

J. J. CASSIDY.

P. H. BRYCE.

W. OLDRIGHT

CHAPTER VIII.

REPORT OF TENT WARDS OF WESTERN HOSPITAL, TORONTO.

By Dr. C. A. Hodgetts, Medical Inspector, Toronto.

Dear Sir,—I have this morning made an inspection of the tents used as hospital wards in the Western Hospital in this city.

The day was a very opportune one for making the inspection, as it was raining heavily, and during the night the down-pour had been great, being accompanied by high winds, conditions which test the capabilities of canvas to resist two of the most disturbing elements likely to inconvenience hospital patients, and make them discontented with their ten wards. To what extent in the present instance will be shown subsequently.

The Hospital authorities began the use of tents in the month of April, 1900, and at the present time have six tents, four of which are now in use. Their dimensions are as follows:

Three	20 x 40 feet.
Two	10 x 20 feet.
One	10 x 16 feet.

The capacity of the tents now in use is 40 beds, and at the time of my inspection 34 of these were occupied, the patients being of all ages, from 13 years to those well into the sixties, and of both sexes, the cases being both medical and surgical. Amongst the former were sufferers from rheumatism, pneumonia and phthisis.

Two of the tents are constructed of single walls with fly roof, while the other two are what are known as double walled tents, being one tent within another, with air space between of about nine inches. Each of the large tents is ventilated by means of openings in the roof, which can be opened and closed as desired. The side walls are about five feet high, and can be rolled up in fine weather. The floors are of single boards, tongued and grooved, laid on sills about twelve inches from the ground.

Each tent is heated by means of two self-feeder coal stoves, one placed at either end of the ward. This is found adequate even in the coldest weather, to maintain an equable temperature.

The side walls of each of the tents are protected by wooden sheeting, which is carried up from some three feet from the floor, and against this wall stood the head of each bed. Adjacent to each

ward, and all under cover, is bathroom and lavatory, while in the centre between two of the tent wards is situated a dining-room.

At the time of my visit I found the wards in good condition; the morning "cleaning up" was in progress. The floors were dry, with no evidence of drip from the roof. The temperature was 58 degrees F. and the air was fresh and pure. The walls were dry, with the slight exception of a corner in the female ward of the tent, reserved for phthisical patients, a matter little to be wondered at considering the severe storm which had prevailed for some twelve hours, and the wall a single one.

I made enquiry of a number of patients as to their experience of the tent ward, and in each and every case there was an expression of pleasure and general approval. Two of those interviewed had been in the hospital for some months, Mrs. M. N. since July 22nd, 1902, and F. C. November 4th, 1902. They both stated they had felt no inconvenience during the cold weather of winter.

Inquiry elicited the fact that the larger single walled tent, in which the tubercular patients were treated, and which was higher pitch in the roof than either of the other two, was more difficult to keep heated.

The fee for maintenance and attendance is 70c more per week for the tent wards than for the general wards in the hospital proper, yet I am informed patients prefer the former to the latter, and the tents are often fully occupied.

In conclusion, I would say that from the information obtained both from the hospital authorities and the patients, I am more than ever convinced of the usefulness of properly constructed tent wards for the treatment of both medical and surgical cases; and any objections offered must simply be due either to faulty construction of the tent, faulty or deficient knowledge on the part of the objector, or one of a sentimental character, which I am satisfied a careful inquiry into the whole subject would dissipate.

CHAS. A. HODGETTS, M.D.,
Medical Inspector.

P. H. Bryce, M.D., Medical Health
Officer, Toronto, April 16, 1903.

CHAPTER IX.

REPORT ON CONSTRUCTION CAMPS AND HOSPITALS OF TEMISKAMING AND
NORTHERN ONTARIO RAILWAY, MOOSE LAKE SECTION.

Dr. C. A. Hodgetts, Medical Inspector.

Sir.—I beg to state that I have just completed an inspection of the camps along the line of the Temiskaming and Northern Ontario Railway, as far as Moose Lake, and find the condition to be as follows :

The general situation of the camps as regards drainage is good, and in most instances the source of water supply cannot become contaminated either from human or animal excreta ; but greater care will have to be taken during the spring and summer, where there is possible pollution from adjoining marshes.

Considering the transitory character of the railway construction work, most of the buildings are fairly well constructed, but they lack the proper air-space accommodation and the necessary lighting and ventilation, so essential to health, and a compliance with Regulations 2 and 3 of this Board. In only one instance was there any provision made for the access of pure air, in accordance with Regulation 2, while all were heated by large box stoves.

It is a common thing to find the only light admitted to a sleeping apartment is by two attic-like windows in the roof—the object apparently being to save wall space. The practice is a good one, if four instead of two are used, and they are heavy enough to permit of their being used for ventilation purposes, and are kept free from snow. The lighting of the sleeping apartments by sky-lights is to be condemned.

As a rule the sleeping apartments were untidy, and, judging by the appearance of the beds, and garments lying around, no systematic attention was paid in any of the camps to enforcing either personal or camp cleanliness. Indeed, enquiry elicited the fact that there existed no provision whatever for either laundry or bath-house in any of the camps, as called for by Regulation 5.

In each camp visited there was found a separate kitchen and dining-room combined, and the food provided was uniformly good, well cooked, and varied in character; the cooks themselves showing great care in the preparation of the food, but they require to observe Regulation No. 7 more carefully, in so far as it relates to the disposal of kitchen refuse.

The latrines are generally provided as per Regulation 8, but were found to be filthy—no provision made whereby

an over-filled pit might be substituted by a new one. In this respect several of the Italian quarters were particularly deserving of censure.

The quartering of this class of workmen in buildings apart from the other men has its disadvantages, for no supervision whatever is exercised over them. They are permitted to herd together at their own sweet will; in some instances buildings are erected for their accommodation, while in others they are their own house builders. The error is a common one, and should be rectified at once : these men should be placed in buildings similar to those called for in Regulations 2 and 3, and rules adopted and printed in English and Italian, and posted up in their apartments, which rules should be enforced.

The stables were in some few instances within the prescribed 125 feet, but the majority were properly placed, and the animals well housed; the interior of the buildings were found well kept.

From inquiries made from the chief medical officer, his assistant, Dr. Smith, and the foremen of the several camps, there has been no attention whatever paid to the vaccination of the men on the works, although it is expressly provided for in Regulation 13; and from the correspondence attached, the question was fully referred to by Dr. Bryce some months ago, at which time the chief medical officer should have insisted on the vaccination of all employees then on the works, and made arrangements for the vaccination of all engaging on and after that date. The neglect on the part of those responsible for the enforcement of this preventative measure, might at any time result disastrously to the speedy carrying on of the work, for, should an outbreak of smallpox occur, there would of necessity follow a quarantining of a large number of the employees and another danger to be feared is a general stampede of the men, hence immediate action should be taken to vaccinate all now engaged on the work, and provide for the employment of only those who can comply with Regulation No. 13.

The hospital at Moose Lake, 30 miles from North Bay, is the first north of that town, the building is constructed

of logs, and is 20 x 40 feet, the back portion being used as a kitchen and sleeping apartment for the man in charge, whilst a similar space is partitioned off in the front, which is used for a dispensary and doctor's sleeping apartment, leaving a space about 20 feet square for hospital purposes. I found the beds, etc., clean, and the hospital in good condition; there were five patients in the ward, three surgical and two medical cases. There was no provision for the disposal of kitchen refuse, which was thrown outside the back door—and, further, there was no latrine attached. The situation of the building was good as regards elevation, etc., but will be found too isolated when the lakes break up. The objectionable feature of the building was the cooking of the food in the hospital itself, for the partition extended up only some six or seven feet, and there was no provision for proper ventilation.

The medical attendance seems to work most satisfactorily, and every care is taken of the patients by Dr. Smith, who has charge of the division.

The newly erected hospital situated in North Bay, is used as a base hospital, and to it are sent the more severe cases, where they are nursed by members of the Victorian Order of Nurses.

I had an opportunity of examining a supply of fresh beef which was being delivered to the camps, and I regret to say the meat was not up to the standard, as I would expect it to be. The carcasses were very lean, and the appearance of the meat not at all good. On remarking the poor quality to several of the cooks, they stated the delivery was not up to the standard they had received heretofore.

In conclusion, I would make the following recommendations: (a) That the Regulations be complied with in every particulars as follows:

Reg. 2. In construction of dwellings.

Reg. 3. In ventilation of dwellings.

Reg. 5. The providing of laundry and wash-house.

Reg. 7. The providing of buckets and a drainage system.

Reg. 8. That latrines be properly constructed.

Reg. 9. The location of stables at least 125 feet distant from a dwelling.

Reg. 10. The adoption of regulations, and their being printed in English and other languages, for the information of the men.

Reg. 13. That evidence of vaccination be required at the time of engagement.

There is no reason why construction camps should not be kept clean and neat, and the men encouraged in every way to adopt habits of personal cleanliness; and it should be the aim and object of contractors and foremen, as well as the medical men, as it is clearly the duty of the latter, to see that such is the case, and, further, it should be the duty of the medical man to examine all meat used.

The unnecessary and expensive plan of erecting permanent buildings for hospital purposes, which will only be in use for a few months at a time, can be overcome by the substitution of double-walled hospital tents, two for each station—one for hospital use and the second for the attendant, and to be used as a kitchen. The tents themselves are portable, and the flooring can be put together in sections, and the whole outfit removed from place to place as the advance of construction work requires it. Besides a saving in cost, the advantages of having a well ventilated and well lighted hospital is of untold advantage in the treatment of the cases.

Respectfully submitted,

CHAS. A. HODGETTS,

Medical Inspector.

March 18th, 1903.

CHAPTER X.

REPORT OF SMALLPOX IN ESSEX.

By Dr. C. A. Hodgetts, Medical Inspector.

To Dr. P. H. Bryce, Secretary Provincial Board of Health, Toronto, Ont. :

Dear Sir,—I beg to report having visited, during the past week, the following municipalities in the County of Essex, viz. : The City of Windsor, the Towns of Walkerville, Amherstburg and Sandwich, and the Townships of East and West Sandwich, Anderdon, Maidstone, Malden, North and South Colchester, and beg to report as follows on the outbreaks of smallpox in this western section of the county :

The total number of cases reported by the several Medical Health Officers as occurring this year, up to date, are as follows :

Municipality.	Cases.
Windsor	13
Amherstburg	3
Sandwich	8
Walkerville	17
Anderdon Township, ...	10
Colchester Township, North	4
South	30
Maidstone Township	2
Malden Township	30 (in 14 houses)
Sandwich Township, East	17
West	
South	

Of this number the following municipalities were free from the infection :

Amherstburg, Walkerville, Colchester South, Maidstone, Sandwich South and Sandwich East, while the condition of the other municipalities is briefly summed up as follows :—

Windsor : Two cases in hospital.

Sandwich Town : Five houses now under quarantine.

Anderdon Township : Two families now under quarantine.

Colchester N. : Four houses now under quarantine.

Malden : Fourteen houses now under quarantine.

Sandwich W. : Three houses under quarantine.

The disease has been present in this part of the Province since January last, and it is gratifying to note the little headway made by it in the municipalities where vaccination is put in force and

the local authorities act with promptness in carrying out the regulations, viz., in Windsor, Amherstburg, Walkerville, Colchester South, Maidstone and Sandwich East; while, on the other hand, it is regrettable to note how failure to systematically carry out vaccination in a municipality results, where surrounded by other infected municipalities, in a rather widespread diffusion of smallpox. Thus in Malden the local authorities in January last issued a proclamation calling for vaccination and revaccination on recommendation of the Provincial Board, but made no provision whatever for the carrying out of the same. To complicate matters, chickenpox had been prevalent in some portions of the township since some time in December. Smallpox of a mild type broke out in a large family in January last, and since then little vaccination was carried out, and the disease has been slowly spreading through the district, until at present there are four houses under quarantine, and the only way in which the local authorities can fully ascertain the extent to which it has spread is by a house to house examination, and at the same time thoroughly carrying out the vaccination of all persons. The condition of affairs in this township is an example of the inefficiency of a Local Board of Health to grapple with public health work. They made a public demonstration in the nature of a proclamation, but failed to assist the M.H.O. when he urged the necessity for the prompt carrying out of the work. As it is, the large unvaccinated population, both old and young, is a ready nidus for the spread of the disease, and at a time, too, when most disastrous to the farming community. With a Central Health Officer in Essex County such a condition of affairs would never have occurred.

Another factor besides neglect of vaccination, even among the exposed persons, which tends to increase the number of cases in an outbreak, is the failure to remove patients to a central isolation hospital, and the townships cannot be too strongly urged to provide themselves with efficient tents for this purpose.

In view of the fact that a fresh outbreak of smallpox has just been reported from the City of Detroit, Mich., and that the Medical Health Officer had ask-

ed the city for the sum of \$50,000.00 to carry on a house to house vaccination. I made inquiries as to the exact conditions in that city, and found that since September, 1902, there had been reported 919 cases, and at the present time there were three centres of infection in the city. The continuance of the disease is due to three factors, viz.: 1st,

non-notification; 2nd, lack of hospital accommodation, resulting in, 3rd, detention of many of the cases in their own houses.

Respectfully submitted,

C. A. HODGETTS,
Medical Inspector.

May 18th, 1903.

CHAPTER XI.

REPORT ON OUTBREAK OF SCARLET FEVER IN THE TOWN OF PORT HOPE.

By Dr. C. A. Hodgetts, Medical Inspector.

Sir,—I beg to report on the outbreak of Scarlet fever in the Town of Port Hope, as follows:—

The inspection was made June 12th, 1903, under the guidance of Dr. Dickinson, M.H.O., who kindly drove me to the several houses visited.

It appears from the report of the cases furnished me by the M.H.O. that the outbreak began on November 3rd, 1902, when a child named Fred Moore, age 4 years, died, although it is more than likely mild cases had occurred previous to this date, unknown to both the medical practitioners and the Local Board of Health.

During the month of December there were reported two cases, both occurring in the last week of the month. This was followed by a complete absence of any notifications during January, 1903, but a more general outbreak happened in February; 26 cases were reported in different sections of the town, 18 houses being placed in quarantine. In March, 22 additional houses were added to the list of those quarantined—there being the same number of cases as in the preceding month, viz., 26; and this condition of affairs continued to exist until April 8th, up to which time there had been reported 6 additional cases in 4 households. During this month only one additional house was quarantined, April 24th, in which were two cases. There were no further cases until May 6th, when there was a recrudescence of the disease, 11 houses being quarantined in the space of 19 days, and the fresh outburst continued until June 8th, when the fourth house that month was placed under quarantine.

It will thus be seen that from November 3rd, 1902, to June 12, 1903, a period of 7 months and 9 days, there had been reported 82 cases in 61 houses, with 17 deaths, being a case mortality of 20.73 per cent. in a town with a population of 4,188.

At the time of my inspection there were twelve houses placarded, all of which I visited. These houses were scattered in various portions of the town, and I was informed that quarantine was maintained by one officer, the chief of police.

From the information obtained from

the houses visited, it was apparent that, while each house was placarded, yet, with the exception of occasional calls from this officer (opinions differed as to the frequency of these visits) there was only the outward semblance of an efficient quarantine.

After visiting the twelve houses referred to, I had the pleasure of meeting the Board of Health and the Chief of Police, and from the information received from both of these sources, I am of the opinion that the complaints made by some of these quarantined are not as serious as would appear on the surface.

Referring to the recrudescence of the disease in the month of May, it appears that in the month of February (23rd), an assistant inspector was appointed, who acted for three months and twelve days, being discharged in the month of April, and it was shortly after this date that there was an increase in the cases reported. I am of the opinion that had this officer been continued in his duties, which were exclusively those of maintaining the quarantine, that such would not have been the case.

I regret to have to report that the local authorities are still without an isolation hospital, in this regard paying no heed to the statute which requires such. Had this building been provided and used as directed by the Regulations, I am sure the number of cases would have been materially lessened, the mortality lessened, and the inconveniences incident to quarantine been greatly reduced.

In conclusion, I submit the following table of cases and deaths:

Month.	Cases.	Deaths.
November	1	..
December	2	..
January	..	..
February	25	7
March	25	4
April	2	3
May	17	3
June	4	..
	82	17

Respectfully submitted,

CHAS. A. HODGETTS.

June 15th, 1903.

CHAPTER XII.

REPORT OF SCARLATINA AT VILLAGE OF RODNEY.

By Dr. C. A. Hodgetts, Medical Inspector.

Sir,—I beg to report on the outbreak of scarlet fever in the Village of Rodney, Township of Aldborough, County of Elgin, as follows:

The Medical Health Officer reports that the first case of scarlet fever he saw was on April 14th last, since which time the disease has appeared in at least six other houses, which have been reported, while it was stated to me that cases had occurred which there was good reason for believing were scarlet fever, but of these the Local Board had received no notice from the attending physician. The children from these unnotified houses had been in attendance at the Public School.

I visited the following houses, and found the present conditions to be as stated:

1. B. F., 2 cases. 1st aet. 8, taken ill May 20th, now convalescent; 2nd aet. 2, illness began about three weeks ago, now desquamating.

2. D. C., 3 cases. 1st aet. 8, ill early in May; there was desquamation of feet and hands; nasal discharge; 2nd aet. 5 milder cases; desquamation of feet and hands; 3rd aet. 9, very mild attack.

3. I. T. Saw a child here aet. 7, who some weeks before had been seen by Dr. Dorland, who reports there were no signs of scarlet fever, and that such was the case is evidenced by the fact that none of the other five children were attacked.

4. G. K., 2 cases. 1st aet. 7; taken ill two weeks ago now desquamating; 2nd aet. 10; attacked a week ago.

5. C. W., 3 cases, 1 death. 1st aet. 7, illness began two weeks ago; now desquamating, and showing every evidence of kidney trouble; 2nd case, aet. 5, illness began two weeks ago; died last night; 3rd case, aet. 2, attacked a week ago; now beginning to desquamate.

6. W. W., 3 cases, 1 death. 1st case, aet. 6, ill one week and died; 2nd case, aet. 7, ill three weeks; desquamating feet and hands; 3rd case, aet. 14 mo., ill one week.

I am of the opinion that all of the foregoing cases, with the exception of the I. T. child, were suffering from scarlet fever, and it would appear that

other mild cases have run their course without medical aid being sought, while so characteristic have been the premonitory symptoms and subsequent progress of other cases that it seems almost incredible the local authorities have not been notified of their existence.

It is greatly to be deplored that so serious a disease should not at once have been reported by the physicians in attendance, thereby permitting of the adoption of all sanitary precautions to check its spread.

From the conditions found to exist at the date of my visit, it is difficult to believe that any medical practitioner could have failed to recognize the true character of the outbreak, yet the local authorities report that all cases were not notified, hence their inability to prevent its spread. This failure to report cannot be attributed to an ignorance of the specific character of the disease, but rather to a failure to recognize a legal responsibility and a disregard of the relative position of medical attendant, Medical Health Officer, and the Local Board of Health in such cases, as set forth in the Public Health Act, and still more clearly defined by the Scarlet Fever Regulations.

When the seriousness of such overt acts is considered, the medical practitioner by whom they are wrought is surely deserving of more than mere words of censure by the Local Board of Health.

The school had been closed, and the Medical Health Officer reported the rooms, thoroughly disinfected, and in addition to the houses already quarantined, two of these visited were also placarded. The Board was recommended to follow out the Scarlet Fever Regulations as the best means for successfully suppressing the outbreak.

Every courtesy was extended to me by the Medical Health Officer and Chairman of the Board during my work of inspection, and I feel satisfied they will spare no effort to stop the further spread of the disease.

Respectfully submitted,

CHAS. A. HODGETTS,

Medical Inspector.

June 26th, 1903.

While in the municipality I was requested to examine a case in the house of Mr. B—, and found that his son, Leo, age 22, was suffering from discrete smallpox, having been ill about ten days; he was unvaccinated. I also found that both his sisters (unvaccinated) had just recovered from the disease in its mild form, and learned that the younger sister had contracted it at the house of Mr. S—, West Lorne,

where she had gone to nurse chicken-pox. It is now quite evident the diagnosis in the S— family was incorrect, and the Board was instructed to disinfect the premises. The B— family was placed in quarantine, but no additional cases are expected, as the parents were vaccinated some time ago and so far have proved immune

C. A. H.

CHAPTER XIII.

REPORT OF OUTBREAK OF DIPHTHERIA IN TOWNSHIP OF DARLINGTON.

By Dr. C. A. Hodgetts, Medical Health Inspector.

Dear Sir,—I beg to report as follows on the outbreak of Diphtheria which occurred in the Township of Darlington, near the Village of Courtice:

The inspection was made April 21st, at the request of the Medical Health Officer. I found that quarantine had already been raised in each of the families, although in one case, viz., that of Mr. Courtice, the disease had first appeared there only fourteen days ago. Owing to the absence of the Medical Health Officer, I was unable to learn if a bacteriological examination had been made before the removal of the quarantine card.

The disease happened amongst the children in attendance at S.S. No. 8, the school being situated in the village. Seven cases in all were reported, with one death. They were as follows:

Trull family—4 cases.
White family—1 case.
Courtice family—1 case.
Cornish family—1 case and 1 death.

The first reported cases were two on March 27th. One in each of the first two families, and the last was on April 7th, when it appeared in the Courtice family.

An examination was made of the Trull premises, on which had been situated a slaughter-house, and I found that the buildings had been torn down but considerable debris in the nature of bones, etc., were scattered around.

The school-house was undergoing disinfection in anticipation of an early re-opening. I found the closet for the

boys in an unsatisfactory condition, more especially as regards the immediate surroundings, back of the screen, a condition which an enforcement of a rule by the teacher would soon rectify.

With the hope of ascertaining the source of the infection, enquiries were made in the surrounding homes, and strong suspicion would seem to rest on a family in the village, where it is reported there were cases of "sore throat," but owing to the family's temporary absence from home, I was unable to verify the facts.

I am of the opinion that the disease owes its origin to some previous and possibly mild case, and not to any unsanitary condition of either the school-house or the premises of Mr. Trull, although both were in some degree contributory thereto, the common "pump-cup" playing no unimportant part as the means of communication.

With the precautions already taken by the local authorities in the matter of disinfection, I am of the opinion that no further cases will occur. Should such unfortunately happen, the Medical Health Officer should at once enforce the new Regulations relating to the disease, and he should very carefully attend to the disinfection of both patients and houses.

Respectfully submitted,
CHAS. A. HODGETTS,
Medical Inspector.

P. H. Bryce, M.D., Secretary Provincial Board of Health.

April 25th, 1903.

CHAPTER XIV.

REPORT OF COMMITTEE ON PROPOSED SYSTEM OF WATERWORKS FOR WHITBY.

Toronto, Nov. 17, 1903.

Gentlemen,—Your Committee begs to report the plans and specifications of the proposed waterworks now being constructed at Whitby. The Board will recall that the matter was discussed a year or two ago, but no definite action was taken by the town till this autumn, when the by-law was passed and work begun.

The scheme finally adopted provides that water will be taken from a reservoir excavated on the gravel beach of Lake Ontario, in a manner similar to that at Port Hope, where such excellent

and abundant water has been obtained, free from possible contamination of the water of the harbor and the clays driven up by storms. The reservoir has not been excavated, but experience elsewhere is that these sub-surface waters are admixtures of lake and the subterranean waters of the upland.

Your Committee has pleasure in recommending the approval of the proposed service for the town, should the analysis of the waters of the basin prove satisfactory to the Board.

All of which is respectfully submitted.

P. H. BRYCE.

CHAPTER XV.

REPORT OF COMMITTEE ON PROPOSED WATER SUPPLY FOR GANANOQUE.

Toronto, Sept. 8th, 1903.

To the Chairman and Members of the Provincial Board of Health :

Gentlemen,—Your Committee on Water Supply begs to report it has considered the application of the Town of Gananoque for the approval of the source of the proposed system of public water supply for the town.

The problem is a simple one, inasmuch as the source of supply is the St. Lawrence River, many miles below Kingston. The only problem, therefore, for the nearest actual source of pollution. Board to consider, is a better point of discharge of the town sewage, which if permitted to go into the river, is such as not to endanger the town water supply against town sewage.

Your Committee has instructed the town authorities to have such tests made of the water, under the conditions of an east wind, as will fully determine this point. The point where the inlet pipe is to be carried to is some half mile above the proposed sewage outfall.

Your Committee would recommend the use of the St. Lawrence water as a future supply for the Town of Gananoque, with the proviso that the intake pipe be carried to such a point in the deep water above the town as will by analysis by the Board prove to be free from danger of any sewage pollution.

All of which is respectfully submitted.

P. H. BRYCE.
E. E. KITCHEN.

SUPPLEMENTARY REPORT ON GANANOQUE WATER SUPPLY.

Nov. 17th, 1903.

Gentlemen,—Your Committee begs to report that it has further considered the question of the intake pipe of the proposed water supply, which it was stated in the first report was to be from the St. Lawrence River above the town at a point to be determined by experimental analysis. Dr. Sinclair, the Medical Health Officer, has discussed the matter with your Committee, who pointed out the necessity for carrying the pipe so far up that the polluted water of Gananoque River would not be carried up by an easterly wind. The analyses so far have shown that the point selected is probably beyond the line of possible contamination; but up to date it has not been found possible to get a wind supply:ing the requisite conditions for the determination of this point. The matter may, your Committee thinks, be left to the future for determination, the Board reserving its right to such extensions of the pipe from time to time, as evidence is forthcoming of contamination.

All of which is respectfully submitted.

P. H. BRYCE.

CHAPTER XVI.

REPORT ON THE PROPOSED SYSTEM OF WATERWORKS FOR THE VILLAGE OF OTTAWA EAST.

Toronto, May 30th, 1903.

To the Chairman and Members of the
Provincial Board of Health :

Gentlemen,—Your Committee begs to submit a report regarding the proposed system of waterworks for the Village of Ottawa East.

Briefly, the village proposes two possible sources of water supply :

1st. The Rideau River opposite the village.

2nd. Wells fed by sub-surface waters.

To make the position plain to the Board, it may be stated that the village is situated on a tongue of land between the Rideau River and Rideau Canal, the soil being sand and gravel to the west and clay sub-soil.

It will hence be apparent that water could be taken from the river or canal. The river, however, up to the present has no population along its banks, unless an occasional farm house ; but your Committee learns that not until Smith's Falls is reached is the Rideau used for sewage disposal.

Of course, the fact remains that it is subject to the accidents of pollution of a river, and while it is true that the vessels which pass down or up the river are relatively few, still other sources are preferable, as public supplies for drinking purposes.

Under these circumstances a number of your Committee advised that further tests be made of the sub-surface wells.

This has been done, and the Reeve has provided a statement stating that the water was taken from wells at points several hundred yards away from the canal.

The analyses of these are given.

Your Committee, in view of the very satisfactory results of the analyses, would recommend that the water of these wells be approved as a source of public water for the Village of Ottawa East.

All of which is respectfully submitted.

(Signed)

P. H. BRYCE.

CHAPTER XVII.

REPORT OF THE COMMITTEE ON SEWAGE RE THE POLLUTION OF THE GRAND RIVER WITH BRANTFORD SEWAGE.

Toronto, Sept. 8th, 1903.

Mr. Chairman and Members of the Provincial Board of Health :

Gentlemen,—Your Committee begs leave to report upon an application made to the Board to bring the attention of the Council of the City of Brantford to the pollution of the Grand River with the city's sewage, and to the fact that resolutions have been passed by the several municipalities situated along the river protesting against a continuation of this pollution.

Your Committee begs to state that a copy of the resolutions of protest was sent to the Council of Brantford, and that the reply contained in the enclosed correspondence has been received.

It may be remembered by some of the members of the Board that this Board approved of the sewerage system of Brantford on June 14th, 1890, by which the city was permitted to temporarily discharge the sewage into the Grand River.

That report states : "Your Committee, while recognizing the force of the fact that the scheme permits and provides for the pouring of the effluent sewage into the river temporarily, is of opinion that for a short time after the opening of the works there will be caused no serious nuisance, as it is always found that at first householders are slow to construct house-plumbing, and that, therefore, this pouring in of sewage may at first be allowed, while the further measures for treating the sewage are in progress."

The supplementary report made by W. Chipman, the engineer, states that the sewage can be carried by grades, which have been maintained, to land near the river bank, at the sewer outfall, and states that the area of land available for a sewer farm is about 100 acres, and is suited for sewage farming. The scheme included then the disposing of the sewage on such a farm.

It will be apparent from the report of the Committee and that of the engineer that the City Council are alive to the position the city is in under the law, and are taking steps towards carrying out the provisions of the original scheme.

Under the circumstances, your Committee would recommend that the Board

expresses its satisfaction that the City Council has taken steps to deal effectively with the matter complained of, and that the complainants will be notified to this effect.

All of which is respectfully submitted.

(Signed) P. H. BRYCE, M.D.
E. E. KITCHEN, M.D.
W. J. DOUGLAS, M.D.

The Fire, Light and Sewer Committee reported in reference to the communications from P. H. Bryce, Esq., M.D., Secretary of the Provincial Board of Health, of the 2nd and 16th of July, enclosing copies of petitions from various municipalities on the Grand River, in reference to the emptying of the sewage of the City into this stream, your Committee has considered these communications.

While from the report of the City Engineer, which accompanies this report, it would appear that the quantity of sewage entering into the river is much smaller than that given in some of the resolutions, and that owing to the large volume of water in the river the extent of pollution is not appreciable, we would nevertheless recommend that the City Engineer be instructed to report upon the work necessary to be done, and that a copy of this report of the Fire, Light and Sewer Committee and the City Engineer's report of this date be forwarded to the Secretary of the Provincial Board of Health, with the assurance that the city will take steps to remove all just causes of complaint.

W. R. Turnbull, Chas. H. Hartman,
B. J. Wade, W. Almas, R. C. Middlemiss.

Moved by Ald. Turnbull, seconded by Ald. Wade, That the report of the Fire, Light and Sewer Committee as read be adopted. Carried.

City Engineer's Office,

Aug. 31st, 1903.

To the Chairman and Members of the Fire, Light and Sewers Committee, Brantford :

Gentlemen,—I beg to report as follows upon the communications of Dr. P. H. Bryce, the Secretary of the Provincial Board of Health, of the 2nd and 16th of July, and the resolutions of vari-

ous municipalities in reference to the discharge of the city's sewage into the Grand River.

There are about 14½ miles of sewers in the city limits with which connections have been made. There are 1,170 connections with the sewers, representing a population estimated at 5,850.

On the basis of 60 gallons per head, the quantity of sewage discharged into the river is 351,000 gallons per day, instead of 1,000,000 gallons, mentioned in one of the resolutions.

The low water discharge of the Grand River below the sewer outlet is 350 cubic feet per second, or equivalent to 2.187 gallons per second.

The quantity of sewage discharged is about 4 gallons per second, or in the proportion of 1 to 544. This is on the as-

sumption that the 60 gallons per head is considered as sewage, or 300 gallons per family. It is a well-known fact that of this quantity a very small percentage should properly be considered as sewage.

The treatment of the sewage will not only involve the purchase of land, but the probable re-laying of about 2,000 feet of the main sewer, and will involve in addition a very large expenditure by the city for the works necessary for the treatment of the sewage, as well as the operating expenses and cost of maintenance.

I remain, gentlemen, faithfully yours,

T. HARRY JONES.

City Engineer.

CHAPTER XVIII.

REPORT ON EXTENSION OF SEWERAGE SYSTEM OF PORT HOPE.

Toronto, May 28th, 1903

To the Chairman and Members of the Provincial Board of Health:

Gentlemen,—Your Committee on Sewerage begs to submit a brief report on the extension of the Sewerage System of Port Hope. The Board will remember that from time to time the plans for sewers on different streets at Port Hope have been approved of, and as will be seen from the plans, the extension provides for sewers on Walton street, which is the main street, and Bradley street, a short cross street running into Walton street.

Examination of the plans shows that provision is made in the 10-inch sewer on Walton street for other lateral sewers, and that the specifications call for a thoroughly good work.

Your committee recommends the approval of this extension, which will discharge the sewage into the existing sewer, which carries the sewage directly into the waters of the river, and thence into the lake. It will be remembered that the town water supply is taken from reservoirs on the beach, which are supplied with sub-surface water.

The provisos which are demanded as conditioning the approval of this extension are:

(1) That the Town Council shall provide for the inspection of all work done under the contract.

(2) That no house connection with the sewer shall be made by anyone, except under the supervision of the Town Inspector.

(3) That all house plumbing put in shall be of a quality, specified in the town plumbing by-law, which, unless otherwise amended, is that in Schedule "B," Cap. 248, R.S.O.

(4) That in the construction of the sewer, provision is made whereby the house sewer opposite each house will be constructed at the time the street sewer is being laid, and be carried to the edge of the lots, thereby preventing the future tearing up of the street and possible breaking or obstructing of the street sewers.

All of which is respectfully submitted

(Sgd.) P. H. BRYCE, M.D.

(Sgd.) J. DOUGLAS, M.D.

(Sgd.) E. E. KITCHEN, M.D.

CHAPTER XIX.

REPORT OF SEWAGE COMMITTEE ON SYSTEM OF SEWERAGE FOR GANANOQUE.

Toronto, Sept. 8th, 1903.

To the Chairman and Members of the Provincial Board of Health:

Gentlemen,—Your Committee on Sewage begs leave to report that it has examined the application of the Town of Gananoque for permission to build a system of sewers which will empty into the St. Lawrence River via Gananoque River.

The plans and details of the plumbing by-laws and inspection have not been forwarded and your committee advise that it be instructed to notify the

Town Council of the favorable consideration under the circumstances of, the use of the St. Lawrence as a temporary means of sewage disposal; but that it desires to have the Engineer's Report for consideration before the scheme receives the Board's final endorsement, as well as information as to the danger due to pollution of the water to persons living along the shore, or on islands below the town.

All of which is respectfully submitted.

P. H. BRYCE.

CHAPTER XX.

REPORT ON THE POLLUTION OF THE STREAM AT ELGIN MILLS BY THE NEWTON TANNERY.

By C. A. Hodgetts, M.D., and J. A. Amyot, M.D.

Sir,—We beg to report having made on Saturday, Sept. 5th, 1903, an examination of the premises of Mr. Jas. Newton, situated at Elgin Mills, in the Township of Vaughan, whereon is located and conducted a tannery, the sewage and waste from which, it is alleged, has become a nuisance to the farmers in Markham township, through whose premises the stream runs, and which stream receives some of the tannery sewage in its passage through the tannery premises before flowing in a southeasterly direction through their farms.

In company with Mr. Newton, proprietor, and Mr. David James, a member of the Markham Township Local Board of Health, we made an examination of the premises, and from the former, who treated us with every courtesy, we learned of the process of manufacture, which briefly is as follows:

The raw Canadian hides are received either fresh or salted, the former being at once treated with salt after the removal of fats, etc., and then placed in a vat containing a liquor of lime, with possibly some other preparation. After removal of the hair, the hides are put through the tanning process, for which a liquor of tan-bark is chiefly used. In addition various coloring solutions are used, for dyeing purposes, the chief colors being black, yellow and red.

The total number of hides treated is from 150 to 200 per week, and the ef-

fluent and trade waste therefrom is about as follows, per week, approximately:

900 gallons of brine and fat.
900 gallons of lime liquor.
900 gallons of tanbark liquor.
600 gallons of other waste.
Total 3,300 gallons per week.

From the tannery this effluent is first run into an underground tank, 8x12x4 feet, holding 2,400 gallons, from which, as occasion may require, it is run into the creek, that portion at least within the tannery premises where most of the hair is removed and sedimentation is partially carried on in a series of roughly constructed beds before it finally leaves the premises. We found that portion of the creek, between the tannery and the point where it crosses the east side of Yonge street, a distance of about 200 feet, and in which the fall is but slight, serving the purpose of a septic tank.

We found further that the creek was at times dammed up at a point close to the tannery; but at the time of our inspection there was but little water running. The creek, too, above this dam we found to contain clear water, but small in quantity.

There are two closets on the bank of the creek on the tannery premises, both of which were full, and liquids from which would find their way into the creek.

The chief source of water supply for the tannery is a series of wells although the creek water is used when possible.

We were informed that it is customary when sufficient head of water gathers, to wash the sewage down the creek.

The tannery premises were not in as clean and sanitary condition as they should have been.

After leaving the tannery we followed the stream down its course through the farms of Messrs. G. Kerswell, G. Robinson, Jas. Graham, J. Paulin and W. Tyndall, as far as the Richmond Hill side line, and found marked evidence of stream pollution from the tannery effluent on the properties of the first two farmers. The addition of water from the springs on Mr. Graham's farm increased the flow and diminished the evidence of pollution. From the side line we drove to the farm of Mr. J. Duncan, $2\frac{1}{2}$ miles south of the tannery by road, but three miles or so by the creek, but could not detect any evidence of pollution at this point.

We were interviewed by several of the aggrieved farmers. Of these Mr. Tyndall stated he moved on to his present farm on April 1st last; on May 12th he turned his cows into pasture, where they drank the water of the creek; towards the end of June he received complaint from the City Dairy, Toronto, that the milk was of a bad flavor and rancid; he then shut the cows from the

creek, and there were no further complaints until three or four weeks ago, when, after cutting fall wheat, the cattle again obtained access to the creek, when, shortly after, the dairy refused his milk.

Mr. Palmer, occupying the next farm to the south, has had similar experience, and has suffered the loss of several hundreds of dollars.

Mr. Duncan has had similar experience, and was stopped from delivering milk on July 1st last, since which time he has been losing at least \$2.00 per day.

Further, the farmers complained that the water of the creek was at times discolored, which discoloration corresponded with the discharge of similarly colored effluent from the tannery, and all of them stated that at times there was a marked odor that came from the creek.

In view of the observations made and the statements received, we are of the opinion that the discharge of the tannery sewage into the creek is a nuisance to the immediate neighborhood and to the farmers for some distance down the creek, but just how far down we are at present unable to state.

Respectfully submitted

(Sgd.) CHAS. A. HODGETTS.
(Sgd.) JOHN A. AMYOT.

P. H. Bryce, M.A., M.D., Secretary,
Provincial Board of Health, Toronto, Ont.

PART III.

REVIEW OF ANNUAL REPORTS RECEIVED FROM THE LOCAL BOARD OF HEALTH OF TOWNS, VILLAGES AND TOWNSHIPS.

By C. A. Hodgetts, M.D., Inspector.

Perhaps the best indication of the extent to which the Local Boards of Health are carrying on their work year by year is found in the Annual Reports of the Medical Health Officers. The work in the several cities is set forth in the reports received from this class of municipalities, and must be considered separately. As a rule, the larger cities are perfecting their several local systems of waterworks, sewage disposal plants, the collection and disposal of garbage and waste material generally, and greater diligence is being shown in requiring notification of contagious diseases, and in their careful isolation of the same. In the case of the group, "Villages and Towns," of which there are some 243 in the Province, the activity is more apparent, owing, doubtless, to the fact that the increase of population in the growing towns necessitates the institution of sanitary measures, which as smaller places were not required. Thus, density of population causes the pollution of wells, which heretofore had been the source of potable waters, and there then follows a demand for a system of waterworks, and almost as a natural consequence an agitation begins for a system of sewers, whereby the excreta disposed of in pits and closets and factory wastes may be effectively disposed of. The need of some system for the removal of refuse and garbage is felt as the town grows, and what in the village is disposed of by the individual householder on perhaps his own premises calls for some municipal system whereby what otherwise would become a nuisance is systematically and economically disposed of, the expense being borne by the whole body of ratepayers, and to keep the careless and indifferent in line the appointment follows of a Sanitary Inspector, who, amongst his other duties, supervises the cleaning of lanes and the premises of the citizens generally. A pleasing feature of the reports this year is the mention made by several of the Medical Health Officers for the need of Isolation Hospitals for the care of scarlet fever and diphtheria cases. Of the 26 villages and towns whose Medical Health Officer reports are referred to, five of them were entirely free from contagious disease, and seven of them report having had smallpox cases during the year.

A review of the Reports of the township Medical Health Officers shows that the rural municipalities are not behind those of the villages and towns in an endeavor to carry out the several provisions of the Public Health Act, and, considering the larger areas of the former, and the scattered nature of the farming communities, the work being done from year to year is most creditable. Amongst other matters touched on in the reports, the following call for particular mention: The first and most important is the demand which is being made for the diffusion, by pamphlets and otherwise, of information regarding the contagiousness of consumption, and the precautions to be adopted by those unfortunately suffering from the complaint. Coupled with this request is the recommendation to some of the Boards of Health, the need for local sanatoria for the treatment of those so affected.

It is quite apparent that more attention is being given to the streams and water courses by the farmers, largely owing to the increase in dairy farms, as complaints have in several instances been made by Township Boards regarding the pollution of the same by adjoining towns and villages, while at the same time more attention is being directed to the wells from which they draw their drinking water. Reference is made to the beneficial results of the licensing of slaughter houses and piggeries. Perhaps the only complaint which seems more general is that in regard to the non-notification by physicians generally to the Local Boards of Health of cases of infectious diseases occurring in the townships, a complaint which is not altogether due to the doctors' carelessness, but is in a large measure brought about by the authorities failing to supply all physicians with printed forms, as required by the Public Health Act, Schedule B.

The work for 1903 in these two classes of municipalities has been of a satisfactory character, and the Local Board of Health and Medical Officers of Health are to be congratulated upon the good work done by them in the interest of public health.

BRANTFORD.

REPORT OF DR. F. G. E. PEARSON, M.H.O., FOR THE YEAR 1903.

Brantford, Ont., Nov. 1st, 1903.

To the Chairman and Members of the
Local Board of Health:

Gentlemen,—Herein I present to you
a report of the Health Department for
the year ending October 31st, 1903 :

Mortuary Statistics.

Considering the death rate as one of the
great factors in estimating the health-
fulness of a community, I am pleased
to report that, notwithstanding the fact
that during the past twelve months the
population of the city has increased from
17,021 to 18,507, the total number of
deaths, exclusive of still-births, for the
same period has fallen from 245 to 222,
thus reducing the death rate per thou-
sand from 14.33 to 11.99, which, I am
sure, is a very satisfactory showing.

Among the causes of death are found:
Typhoid fever, 6; scarlet fever, 7; diph-
theria, 5; pneumonia, 21; tuberculosis,
15; cholera infantum, 9; spinal meningi-
tis, 5.

As to ages, it was found: Under 1
year, 15; under 5 years, 42; over 60
years, 80; over 80 year, 24.

Diphtheria and Croup.

Of the above diseases, 47 cases, less
5 from O.I.B., with 5 deaths, occurred in
the city within the past year, as com-
pared with 72 cases, with 12 deaths, for
the preceding twelve months, making a
very pleasing reduction, and due, in my
opinion, very largely to the enforce-
ment, as far as our humble means would
allow, of the new Regulations of the
Provincial Board of Health, and which,
I think, could have been further reduc-
ed had we the proper equipment for test-
ing swabs, etc., which in many cases
would have allowed of more hospital
time, and, furthermore, would have en-
abled us to detect many mild cases that
from the lack of such means are unde-
tected.

Scarlet Fever.

With scarlet fever I am not able to
report so favorably as with the preced-
ing disease, for during the past year
there has been an increase from 34 cases,
with no deaths of last year, to 101 cases,
with 7 deaths this year. The causes of
this were twofold: First, on account of
the many mild cases where no medical
aid was required, and were thus not re-

ported, while in the second place, our
limited capacity for taking care of cases
—the period of quarantine being of
great length—we were unable to follow
the required regulations as we should,
and since experience has demonstrated
that home quarantine is prac-
tically impossible, besides an interfer-
ence with the rights of indi-
viduals, the only wonder is that we have
been so fortunate as we were in keeping
the number of cases as low as we did.

Contagious Diseases.

Of this class of diseases there has
been reported at the office during the
past year 210 cases, as compared with
188 cases for the preceding twelve
months, the increase being largely due
to the prevalence of scarlet fever.

The classes of diseases were as fol-
lows: Smallpox, 5; typhoid fever, 97;
diphtheria, 42; scarlet fever, 101.

Smallpox.

During the month of January we were
visited by an isolated outbreak of
smallpox, in which we were fortune-
ate enough in confining to one house,
out of which we had five cases, with
no fatalities, although two of the cases
were of a severe type. The source
of infection was from Galt, from where
a relative of the above family, after
exposure to the infection at home, came
to Brantford and developed the dis-
ease.

Typhoid Fever.

The number of cases of typhoid fever
reported for the period of this report
was 67, with — deaths, as compared
with 43 cases and 4 deaths of last
year. Following the history of all
previous outbreaks, we find that from
the unsewered and well watered por-
tions of the city the disease is most
prevalent, and in support of the ad-
visability of having good sewerage and
water we find but three cases occurred
in houses where both these were, and
one of these, I think, was traceable to
an out-of-town source.

As a comparison with the different
home water supplies, we find 31 were
wells, 18 city, and 18 both city and well
water users.

Other predisposing causes there may
be, as the general state of premises, cel-
lars, etc., yet I am sure that with the

general extension of city water and sewers the majority of cases that do would not occur.

This, gentlemen, brings up again the point of preparing for the enforcement of these regulations, which for the successful combating of these diseases must not longer be neglected, for with the advent of winter, during which season these diseases are generally of greater prevalence, etc., graver difficulties than those of the past may too soon be encountered, and as it is imperative that proper accommodation either temporary or otherwise, must be provided, I, therefore, earnestly request that your immediate action be given to this matter.

Ice.

With this commodity, which is greatly used in various ways by the community, too much care cannot be taken in having only the best possible supply. I have, therefore, as in the past, had various samples of water taken from the various sources of supplies, and analyzed, the relative purity of which will be seen in the following copy of the report, viz :

—	Lab. No.	City No.	Straphylo-cocci.	Strepto. cocci.	Colon B.	Chlorine per million.	Remarks.
River Pond.....	2545	1	None.	None.	None.	4	Good.
Tail race from mills....	2546	2	"	"	Present.	5	Colon B. Very doubtful.
1½ mile below Wilkes dam.....	2547	3	"	"	None.	15	Excess of chlorine, Good.
De Aubigny creek.....	2548	4	"	"	"	3	Good.
Grand River, 1 mile west of city.....	2549	5	"	"	"	4	Good.
Grand River, 150 yds. above Lona Bridge.....	2550	6	"	"	"	3	Good.
Blue Lake.....	2557	7	"	"	"	1	Very good. Phenomally low chlorine.

Milk Supply.

As in former years, the question of milk supply has had our attention, and frequent tests as to the standard of butter fat and solids have been made, the result being that the standard average is well maintained.

We have not, however, on account of time and the lack of required laboratory facilities, been able to make tests for preservatives which in some places are used in the warmer months to prevent the milk from becoming sour, etc., and which in these places has been the cause of not a few offenders being made defendants before the courts; and I hope that in the near future when we are able to give this matter full attention the Brantford supply will be found free from such adulterations.

Recommendations.

As I have intimated in the various divisions of this report, that for the perfecting of the work certain improvements must be adopted. Thus, commencing as under the head of typhoid fever, we see the absolute need of the general extension of the sewers and city water supply, which this Board has been active in carrying on. We have at the same time a crying need for a

Garbage System

wherewith the general house refuse would be thoroughly and systematically removed, thus getting rid of, if not a nidus for the development of disease, to say the least is an offensive nuisance, and which, I think, would at the same time be an incentive to the general public to take more interest in their back yards.

Bacteriological Laboratory.

Another absolute need for the working of the department is a bacteriolog-

ical laboratory for the purpose of examining water, milk, foods, etc., besides the diagnosis of certain diseases in which it is indispensable.

Therefore, I trust that this Board will see that such a utility will at once be placed at our disposal.

Sanitary Inspector.

In taking up the matter of sanitary inspector I am sure I voice your sentiments when I say that the city has grown beyond the stage when we can longer do without a sanitary inspector, whose whole time can be devoted to this work, for which the present system, no matter how efficient a man is, there is a limit, and that limit is more than reached at present with the ordinary routine work, for, with emergency work cropping up

and the nightsoil contract to look after, house-to-house inspection and other progressive work has become neglected. So, anticipating your concurrence in this matter, I trust that with the commencement of the year a Sanitary Inspector will be appointed

to devote his time entirely to the work.

All of which is respectfully submitted for your consideration.

I am your obedient servant,

F. G. E. PEARSON.

HAMILTON.

REPORT OF DR. W. F. LANGRILL, M. H. O., FOR THE YEAR 1903.

Hamilton, December 17th, 1903.

To the Chairman and Members of the Local Board of Health:

Gentlemen,—I have the honor to herewith submit to you the report of the sanitary condition of the city and the work of the Health Department for the year ending October 31st, 1903:

There were 1,785 cases of infectious diseases of all classes reported during the year. Of these, 1,379 were cases of mumps, which was a prevalent disease in all parts of the city during January, February, March, and April. There were no deaths recorded due to it, but in many cases serious sequelae were left, which should be a warning that more care is necessary in isolating those sick with this disease. The present system of merely preventing the children from going to school, which was carried out rigidly in this epidemic, is useless to prevent the spread of this disease. Many physicians hold that on account of the comparative harmlessness of mumps, no attempt should be made to limit its spread, as it is less severe in childhood than in adult life. This view of the matter, I think, is a mistake, as a number of adults who have escaped these so-called diseases of childhood is yearly increasing with the decrease of communicable disease, so that it becomes necessary to isolate the child to protect the adult. Many adults had the mumps this spring, which entails serious illness and loss of time from business, etc.

Typhoid fever and diphtheria are the best indices of the sanitary conditions of a city, and I am glad to be able to report that there have been fewer cases and deaths from these diseases this year than from some years past. There were 86 cases of diphtheria, with 13 deaths, a mortality of 15 per cent. of cases, a case rate of one in every 640 of population, and a death rate of one in every 4,230 of population. There were 24 deaths from diphtheria in 1902, and 25 in 1901, so that this year shows a reduction of 50 per cent. It is worthy

to note that of the 86 cases reported to the Health Department, 71 were removed to and treated in the isolation building of the City Hospital. Of the 71 cases treated there, 8 died, while of the 15 cases treated at home, 5 died, a comparative statement which demonstrates forcibly the advantages to the patient of hospital treatment.

It is a matter of congratulation that the Isolation Hospital is being taken advantage of more and more each year, giving the Health Department a better opportunity to stamp out the infectious disease in the home after the patient has been promptly removed to the hospital.

The Regulations of the Provincial Board of Health now require the Medical Health Officer to remove every case of scarlet fever and diphtheria at once to the Isolation Hospital. In a good many instances, especially in scarlet fever cases, parents have refused to allow me to remove their children to the hospital, and I was obliged to leave them in their homes, believing that forcible means and harsh measures would ultimately defeat the attempt to win public opinion and confidence in favor of prompt isolation of such cases. I think the Regulations of the Provincial Board should be amended or enforced, by placing the responsibility of going to a place of isolation upon the patient or guardian, as well as on the Medical Health Officer, so that in the event of the spread of the disease through refusal, the responsibility for damage, which might arise from such spread could be made to be shared by the patient or guardian thus refusing.

There were 53 cases of typhoid fever reported, with six deaths, a mortality of 10 per 100,000 of population, which is a very low death rate, and places the water, ice, and milk supply of the city in a good position in comparison with other cities as regards freedom from typhoid germs. Many of the cases became infected outside the city, most

while in the country, doubtless from using impure well water.

Three cases of smallpox were reported this year, each being of a separate outbreak. Two cases were imported, one from Binbrook Township, and the other a tramp from the United States. Owing to the prompt and efficient measures taken by the Board and its officials, in no instance did the disease spread beyond the first case. These cases were handled at a cost of \$546, deducting \$200, the cost of the wooden structure, which was erected last winter, and which will be of use for the future. Thus, the average cost of stamping out each outbreak, with care and treatment of patient, was \$182, which for smallpox shows economic methods.

Four cases of smallpox occurring in one family in the Township of Barton were treated in the Isolation Building, that municipality bearing the whole cost. As the infected house was on the borders of the city, and a menace, it was thought advisable for the Health Department to undertake the handling of the outbreak, and, fortunately, no other cases developed beyond that family. The Board of Health is to be congratulated that it has at length procured an excellent site for a permanent smallpox hospital, and I hope next year a proper building will be erected.

The other infectious diseases reported during the year were: Scarlet fever, 104 cases, with 7 deaths, which is four more than last year, but in comparison with the malignant type that has prevailed in other cities of the Province, our city has been fortunate, but during the coming year, to more effectually control this disease, the Board of Health should take steps to secure the removal of more cases to the hospital. Of 104 reported cases, only 36 were treated in the Isolation Hospital. Of these 36, only one died, so that the hospital treatment of this disease again more than favorably compares with that to be had at home. 94 cases of chickenpox were reported; 20 of whooping cough, with 3 deaths, and 12 of measles.

Infectious disease occurs for the most part in the school population, and experience confirms the opinion that a great many cases are contracted by contact in the school room, usually with mild cases, which have been thought trivial, and the services of a physician unneeded. Medical Inspectors are employed in many cities of the United States to visit the schools, and their reports are surprising in the amount of infectious disease found in the pupils attending. If all school teachers maintained a strict watch, much could be done to lessen the infection in their

classes. A summary of the infectious diseases which have occurred in the various schools during the year indicates that some school teachers are more watchful than others in excluding from school, suspicious cases.

Mortuary Statistics.

Excluding forty-seven still-births, which are not counted in mortuary statistics as deaths or births, 706 deaths have been recorded at the Registrar's office during the past twelve months. The Assessor's enumeration gives the city a population of 54,761, thus showing a death rate of 12.8 per 1,000 of population. This is a very low rate, and does not exceed that of the Province taken as a whole, and indicates that the city is in a good sanitary condition. The death rate per 1,000 last year was 13.7, and the year previous 14.5, showing a decrease of nearly 2 per 1,000 in the last two years. Of the 706 deaths, 370 were males, 336 females. There were 155 deaths under one year of age, nearly 22 per cent. of the total mortality. Premature births, of which there were thirty. Unsanitary surroundings and improper food (usually unwholesome milk), are the chief factors in the causation of infant mortality. There were 30 deaths from cholera infantum and other diarrhoeal diseases in infants; 149 persons reached three score years and ten, about 20 per cent. of total mortality; 55 lived to be 80 years of age, and 7 over 90, the oldest age recorded being 95.

In the city charitable institutions there occurred the following deaths:—House of Refuge, 15; Infants' Home, 5; St. Mary's Orphan Asylum, 3; Aged Women's Home, 3. As physician to the House of Refuge and Gaol, I wish to testify to the excellent manner in which both these institutions are conducted, and to the good care which the inmates receive. Twenty-five deaths occurred from accident, and 8 from suicide. Among the general causes of death were 30 from cancer (15 less than last year), 62 from heart disease, 55 from pulmonary tuberculosis (consumption), and nine from other forms of tuberculosis, being 50 more deaths than from all the other infectious diseases. There were 105 deaths from tuberculosis in 1902, thus showing a decrease this year of over 40 per cent. I attribute this in some measure to a better understanding and treatment of the disease, and to the better education of the people in its causes and prevention. Thirty-four cases have been reported to me since March 1st, and in twenty the assistance of the Department was sought and given in in-

structing in prophylaxis, while the disinfection of the houses after death and removal is being generally adopted. This work should be assiduously advanced until every case is reported and methods adopted to destroy every possible source of infection.

The by-law to prevent spitting in public places, if properly enforced, will add both in a practical and educational way to limit the spread of this disease. While these direct measures are necessary, there are many indirect evils to be remedied, amongst them the insufficient ventilation of workshops, factories, offices and schools. Impure air is the greatest predisposing cause of consumption. Four cases of tuberculosis were sent by the city during the year to the Sanitarium at Gravenhurst, and three of these have been discharged with the disease arrested, while the other is improving. The cost of these cases has been \$211, an average cost of \$50 a patient. This opportunity for treatment at the Sanitarium has not been taken advantage of by the consumptive poor as it should be. While provision has thus been made for the curables, as yet nothing has been done for the relief of the unfortunate incurables. I strongly recommend that when the Home for Incurables, which is urgently needed, is erected proper measures will be taken to provide for them.

Six hundred and eighty-seven samples of milk were collected and analyzed during the year. The average proportion of butter-fat in the 687 samples was 3.84 per cent., so that the milk supplied to the city, considered as to its food value, has been satisfactory, as 3.5 per cent is regarded as a fair standard of richness. The practice of coloring milk to give it a creamy appearance has been stopped. During the summer months 109 samples of milk were analyzed for preservatives, out of which 26 were found to contain formaldehyde, and seven milk dealers were prosecuted and fined for this reprehensible adulteration, with the result that this prac-

tice ceased. If milk is clean and kept cool, drugs are not required to keep it from turning sour. Cleanliness of milk is of more importance than its food value, and the regulations to ensure its purity cannot be too rigidly enforced. The numerous bacteria in milk rapidly increase with warmth, and in their growth poisons are formed, which in infants cause diarrhoea. I am of the opinion that infant sickness and mortality could be appreciably decreased by prohibiting the sale of milk at a higher temperature than 50 degrees F.

The scavenger service, which is so important in promoting cleanliness and health in the city, has been made more efficient by increasing the force and forming another district. From five of the six districts very few of the complaints have been received, and the work has been very satisfactorily done through the contractors; the other had to be changed several times, thus interfering with good work. The whole system should be greatly improved by employing men to go just in advance of the teams, and to carry garbage barrels out to the street or alley, thus relieving householders of this disagreeable task, while the unsightly appearance of garbage receptacles of all kinds lining the streets would be removed. This could be done by increasing the Board of Health appropriation \$500.00 which would make the cost to each householder about five cents a month.

I append a report of work done by Sanitary Inspectors, and tables and maps showing the distribution of infectious diseases. You will see that they have occurred in an isolated way throughout the city. All nuisances complained of during the year have been promptly investigated and attended to by the Inspectors. I wish to commend them for good work in discharge of their several duties.

Respectfully submitted,

WALTER F. LANGRILL.

Medical Health Officer.

Comparative Table, Showing Number of Cases and Deaths from Infectious Diseases for Past Five Years.

Years.	Diphtheria.		Scarlet Fever.		Typhoid Fever.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
1899.....	99	17	123	10	75	17
1900.....	86	21	144	3	61	16
1901.....	93	25	88	4	58	10
1902.....	106	24	97	3	64	7
1903.....	86	13	104	7	53	6

Table Showing Number of Deaths Annually from Tuberculosis During the Past Ten Years.

Years.	Number of Deaths.
1894.....	80
1895.....	104
1896.....	100
1897.....	83
1898.....	109
1899.....	90
1900.....	108
1901.....	97
1902.....	105
1903.....	64

Table Showing Number of Deaths During 1903, Within the Following Age Period.

Age Period.	Number of Deaths.
Under one year	155
From 1 to 5 years	40
From 5 to 10 years	21
From 10 to 20 years	38
From 20 to 30 years	48
From 30 to 40 years	43
From 40 to 50 years	57
From 50 to 60 years	60
From 60 to 70	82
From 70 to 80	87
From 80 to 90.	55
From 90 to 100	7

Table Showing Deaths from Infectious Diseases by Months in 1903.

Diseases.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	Total.
Diphtheria and croup.....	1	1	2	.....	1	.....	.....	3	2	.....	1	2	13
Scarlet fever.....	.....	.....	1	.....	1	2	.....	1	1	.....	.....	.....	7
Typhoid fever.....	1	1	.....	.....	.....	.....	.....	.....	.....	1	.....	2	5
Whooping cough.....	.....	.....	.....	.....	.....	2	1	.....	.....	.....	.....	.....	3
Tuberculosis	4	5	10	3	5	4	11	5	5	3	4	5	64

Summary of Infectious Diseases Reported from November 1st, 1902, to October 31st, 1903.

Diseases	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	Total.
Diphtheria.....	5	5	14	4	6	3	23	12	11	.....	7	16	86
Scarlet fever.....	2	7	16	5	6	14	10	9	13	3	5	14	104
Typhoid fever.....	5	1	2	3	1	1	1	.....	.....	13	9	17	53
Chicken pox.....	13	10	11	19	14	8	11	1	.....	1	5	1	94
Whooping cough.....	.....	2	.....	1	7	5	27	1	1	.....	.....	1	20
Mumps.....	13	52	212	427	518	121	27	7	1	.....	.....	.....	1,379
Smallpox.....	.....	.....	1	1	.....	.....	.....	1	.....	.....	.....	.....	3
Measles.....	2	2	1	1	1	1	1	2	.....	.....	1	.....	12
Tuberculosis.....	.....	.....	.....	.....	9	4	5	3	3	3	4	3	34

Summary of Work Done by Inspectors in Quarantine and Disinfection.

	Diphtheria.	Scarlet fever.	Typhoid fever.	Smallpox.	Tuberculosis.	Total.
Houses placarded.....	58	70	3	.....	.....	131
Placards removed.....	58	70	3	.....	.....	131
Houses disinfected.....	69	88	1	17	.....	193
Inspections made while under quarantine.....	61	70	50	37	.....	218
Defects found in sanitation.....	2	3	6	.....	.....	11
Private funerals attended.....	6	3	.....	.....	.....	9

WALTER F. LANGRIL, M.D.

Medical Health Officer,

City Hall, December, 1903.

LONDON.

REPORT OF DR. T. V. HUTCHINSON, M. H. O., FOR THE YEAR 1903.

London, Ont., Dec. 5th, 1903.

To the Chairman and Members of the Board of Health:

Gentlemen,—I have the honor to lay before you my Annual Report upon the health and sanitary condition of the city for the year ending November 15th, 1903.

The total number of deaths for the year was 588, exclusive of 34 still born, which are not included in mortuary statistics. Pneumonia and consumption, as heretofore, have the largest number to their credit, or discredit, namely, pneumonia 40, consumption 33. This is a very satisfactory decrease in the number of deaths due to consumption, the number in the city ranging annually from 50 to 60. This decrease is due in a great measure to isolation, and the growing popular conviction that the disease is contagious. Cancer caused the death of 38 persons, the largest number reported for any year. There was also a large number of deaths due to violence, namely, 24. This is: 11 by railroad accidents, 11 by other accidents, and 2 by suicide.

One hundred and sixty-five houses or dwellings have been placarded for scarlet fever and 52 for diphtheria. Most of the cases of scarlet fever would have been treated at the hospital had there been accommodation. Added to these were 240 cases of diphtheria treated in Victoria Hospital, and 164 of scarlet fever.

There were 5 cases of smallpox during the year, together with 4 others who were quarantined with them in the Smallpox Hospital. The first case occurred on December 22nd, 1902, the rest were admitted in May and July. None of those having the disease had been vaccinated, but all the patients recovered.

About 90 streets have been affected, but on 40 of them there has been only one case, and several streets with only two cases during the year. In the majority of cases the streets affected in 1902 are repeated in 1903; those with many cases in 1902 have usually more still in 1903.

The increase is not confined to streets unsewered, there are large increases upon streets having old combined sewers, and new separate system sewers.

Elizabeth, Elias and Nelson are without sewers, and are affected in 1903, and not in 1902, and there have been

many more cases in Maitland, Waterloo, William, and Grey streets, which have sewers on separate or combined system.

So, while the present increase in diseases of an infectious nature cannot be directly chargeable to the sewers, I am convinced that the spreading of them would be materially checked if the sewers were systematically and thoroughly flushed. I have already called the attention of the Board to this matter, and instructions were given to the Engineer to have all sewers flushed once in three months. To comply with this demand, the City Engineer informed No. 2 Committee that he would require an additional man, and I understand the letter was filed. In the meantime the Engineer is doing as much as he can with his present staff, and I have received a list from him of 12 or 15 sewers attended to since he received the Board's communication, but constant attention will be necessary if any decided improvement is to be made.

There are 40 miles of sewers in the city, with 20 flush tanks on the separate system. Within the last few years a large number of sewers have been put in on the separate system, many of them provided with flush tanks, because no storm water gets into these sewers, and unless constantly flushed they become foul and a source of danger to the city. The necessity for this work being thoroughly done cannot be too forcibly impressed upon the Council, and the matter should not be allowed to rest until suitable provision has been made for this necessary work.

I also urge upon the Board the importance of doing away with all cesspits on sewered streets, and of the desirability of calling the attention of all users of cesspits to see that they have full and direct ventilation, otherwise the atmosphere of the house must become vitiated whenever sink or bathroom is used.

When the inspectors are sent out in spring a census of cesspits should be taken, and a record made of them, showing whether ventilated or unventilated. I have no doubt many of the cases of diphtheria are due to the use of imperfectly ventilated or foul cesspits, and as there has lately been an immense increase in the number of houses with modern improvements, so the cesspit question has grown in importance.

During the past few years the practice of building houses close together,

and regardless of yard room, has grown to such an extent that the adoption of a proper garbage system for the city has become an absolute necessity if the health of the citizens is to be preserved. The past summer having been cold and wet, with comparatively little sunshine, has been productive of disease to a greater extent than would have been the case with a weekly collection of garbage from the houses.

Considerable hardship has been inflicted upon householders owing to the inadequacy of the hospital accommodation for scarlet fever, rendering it necessary to treat a large number of cases at home, with the consequent quarantining of all members of the household.

The stringent regulations of the Provincial Board of Health make it necessary to provide increased permanent hospital accommodation.

The result of the autumn inspection of milk shows a slight decrease in the percentage of butter fat.

The Aged People's Home, having no means of drainage, should be provided with a septic tank.

The death rate for the year was 14.7, as compared with 15.9 last year.

Very respectfully yours,

T. V. HUTCHINSON.
Medical Health Officer.

OTTAWA.

REPORT OF DR. R. LAW, M. H. O., FOR THE YEAR 1903.

To the Chairman and Members of the Board of Health :

Gentlemen,—I beg to present the report of the Health Department for the year ending 31st October, 1903.

A pleasing feature of the report is the marked decline in the number of infectious diseases, and the still more marked decline in the number of deaths from these troubles.

The most important event for us this year has been the opening of the Civic Isolation Hospital, which has now rendered us ten months' splendid service. Having a record of 198 cases of scarlet fever treated, with six deaths, or a mortality of 3 per cent., and 226 cases of diphtheria treated, with 12 deaths, or a mortality of 5 per cent., whilst the mortality from these diseases throughout the Province has been 15 per cent. during this period. The hospital's influence upon scarlet fever has been most striking, there having been an uninterrupted decline in the number of these cases until we find but 15 occurring in October, 1903, as compared with 63 in the same month one year ago. But the same important of all, a mortality of 50 in 1902, is reduced to 10 in 1903.

During the year the total number of births reported was 1,583. The total number of deaths, 1,198; this, with our estimated population of 61,587, gives us a mortality rate of 19 per thousand. As many deaths recorded are of people coming to the hospitals, and homes of the city from other municipalities, our

death rate must be considerably lower.

A review of mortality table No. II. shows a total of six deaths from typhoid, and of these three were from other municipalities. This speaks very highly for the excellence of our water supply.

Twenty-seven deaths from whooping cough shows that this disease should not be considered so lightly as it often is.

Tuberculosis has again caused more deaths than all other infectious diseases combined. I must repeat my recommendation of last year for your earnest attention to this matter. Action should be taken, and promptly, to lessen the tale of death and suffering from this formidable and insidious disease. The Provincial authorities have already passed an Act whereby they are pledged to contribute a portion of the cost of erection and maintenance of sanitariums for the treatment of patients afflicted with tuberculosis. Toronto is now moving in this matter, and Ottawa cannot afford to be far behind.

The recommendation of your Board has been heard so often in favor of a municipal garbage system that it is now really more a matter for the Finance Committee and the Board of Works.

So many complaints are heard against stables and the accompanying manure heaps that I think more definite regulations to lessen the nuisance from this source, should be enacted.

I beg also to present the report of the Sanitary Inspector and the Plumbing Inspector, dealing with their work in the department.

In conclusion, I have much pleasure in testifying to the excellent service rendered by the staff of the department. Respectfully submitted,

(Sgd.) ROBERT LAW, M.D.

December, 1903.

Table No. III. Showing Number of Cases Treated in Hospitals for Infectious Diseases During Year 1903.

	Annex hospitals.		Isolation hospital.		Porter's Id.
	Diphtheria.	Scarlet fever.	Diphtheria.	Scarlet fever.	Smallpox.
Admitted.....	48	52	226	198	6
Deaths.....	4	3	12	6	1

Table No. IV. Infectious Diseases Reported During 1903.

Diseases.	No. of cases.
Diphtheria	251
Scarlet fever	320
Smallpox	6
Reports of other diseases unreliable.	

Table No. II. Showing Annual Mortality from Infectious Diseases.

	Tuberculosis.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.	Smallpox.	Typhoid.	Total.
1901.....	125	52	65	29	12	....	12	295
1902.....	140	50	21	....	4	....	23	246
1903.....	112	10	38	1	27	....	6	194

Table No. V. Record of House of Bethlehem Foundling Home for 1903.

Total admissions for the year ..	250
Placed outside or returned	132
Deaths.....	79
Number remaining in home	39

ST. CATHARINES.

REPORT OF DR. E. GOODMAN FOR THE YEAR 1903.

To the Mayor and Council of the Corporation of the City of St. Catharines :

Gentlemen,—Pursuant to the requirements of the Public Health Act, I herewith submit my report on the sanitary condition of the city for the year ending the 15th of November, 1903.

The low rate of mortality and the almost entire disappearance of malarial and other zymotic affections, are the best evidence of the very satisfactory condition that has prevailed in St. Catharines during the past year.

This favorable showing may, I think, be attributed in a great measure to the purity and abundance of our water supply, to the thorough daily flushing of the sewers, and to the precautions taken to secure the purity of the milk furnished to our citizens by the licensed dairy-men.

Numerous complaints have been made to the members of the Board respecting the nuisance created by smoke, due to the increase in the consumption of soft coal, as a fuel, in industrial, education-

al, and other large establishments. Unless smoke consumers are brought into use, or other methods are adopted to abate the annoyance, it may be necessary to follow the example set by the Toronto City Council, and enact a by-law with that object in view.

The prospective changes in connection with our public water supply, seem to have created an impression in the minds of some of our citizens that the purity of the water might, under certain contingencies, be impaired. It has also been stated that, in the event of the retaining walls of the proposed Cataract Power Company's dam giving way, it would prove disastrous to the property of the city at the reservoirs, and deprive the citizens entirely of the water needed for domestic purposes, and for protection against fire.

Whether your honorable body attaches any importance, or not, to these apprehensions, that have appeared in the columns of the local press, it is well worth considering the advisability of connecting the water works systems of

St. Catharines and Merritton. This could be accomplished at a small expense, would prove advantageous to both municipalities, and would ensure the continuance of a constant supply of water to both, should any accident ever interfere with the proper supply of either.

If the streets of the city could be more efficiently watered and cleaned, it would prove a sanitary benefit; as clouds of wind-driven dust, charged with decomposing organic matters, have an injurious effect on the air-passages of those exposed to them, and of necessity compelled to inhale them. For persons afflicted with weak throats and lungs, or predisposed to pulmonary tuberculosis, to breathe foul and irritating dust is an undoubted menace to health and life.

Although the city has been remarkably free from contagious diseases during the past year, it is to be hoped that this gratifying fact may not lead the Council to lose sight of the ever-impending necessity for the procurement of an isolation hospital, for the treatment of those maladies that cannot be safely admitted to the General Hospital. It is a great hardship to families, especially to those who depend upon their daily wage for their daily bread, to be quarantined whenever a contagious disease occurs on the premises. It also involves a considerable outlay of municipal funds. For sanitary, humanitarian, and financial reasons, it is incumbent, therefore, upon the civic authorities to provide a place

in which persons suffering from diseases of a contagious nature can be properly cared for.

The Sanitary Inspector, whose report is annexed, has performed his duty in a satisfactory manner. In company with the Street Superintendent, he has inspected the sewers and flush tanks, and has, by request, disinfected the ambulance, the free public library, and all public and private premises that needed fumigation.

As will be seen, by consulting the accompanying report of the very efficient and obliging Secretary of the Board, the total number of deaths from all causes occurring in the city during the year ending the 15th day of November, 1903, was 152. Estimating the population of the city at 10,676, the death rate for the year would be 14.23 per thousand. Deducting the number who died from old age, premature birth, non-residents dying in the hospital, drowning and killing, 49 in all, I find that the rate of mortality, based on the number who died from disease of some kind, is only 9.64 per thousand, which is remarkably low, and speaks well for the sanitary condition of the Garden City of Canada. The rate for 1902 was 12.16 per thousand, which held the record for the Province until this year.

Respectfully submitted,

EDWIN GOODMAN, M.B.,
Chairman Local Board of Health.

STRATFORD.

REPORT OF DR. J. A. ROBERTSON, M. H. O., FOR THE YEAR 1903.

To the Chairman and Members of the
Local Board of Health, Stratford:

Gentlemen,—In presenting my annual report on the sanitary condition of the city for the past year, I again congratulate you on its extremely healthy state, during that time. The past year has experienced fewer contagious diseases than any year since the organization of the Board. In fact, it is unparalleled, by the records, of any city of its size in the Dominion, something of which we ought to feel proud. There were only 15 contagious diseases reported during the year, ten of these being scarlet fever and five diphtheria. A few of these cases were imported from outside municipalities. Strict vigilance and isolation were carried out, which materially tended to prevent the spread. The

rooms of the school which the children who were affected, attended were promptly cleansed and disinfected, and every possible care observed.

There were 31 cases of typhoid fever reported. Of these one died. This is a remarkably good showing, the number of cases being much less than that of previous years.

Consumption still stands out prominently, and the number of victims greater, than that of previous years. This is in a manner accounted for by the fact that the cases reported were of long standing, and succumbed during the year. This does not, however, indicate that the disease is making more headway than heretofore; for the number of cases at present afflicted are not greater than usual.

In all, there were 128 deaths of residents of the city. The cause of death was as follows:—Old age 23, consumption, 16, heart failure 5, convulsions 2, meningitis 3, blood poisoning 3, peritonitis 2, premature birth 8, which should scarcely be included in the death rate, paralysis 6, jaundice 1, pleurisy 1, suicide 1, cancer 4, poisoning 1, summer complaint 4, gastric enteritis 1, indigestion 2, diabetes 2, inflammation of the bowels 1, dropsy 4, ulcerated liver 1, typhoid fever 1, croup 1, pneumonia 2, bronchitis 3, inflammation of brain 1, accident 2, inflammatory rheumatism 2, operation 1, sarcoma 1, asthenia 2, no cause given 21. No certificate of death should be issued without the cause of death being given.

Of the number of deaths we find that:

2 were over	90
19 between	80 and 90
11 "	70 and 80
12 "	60 and 70

5 between	50 and 60
17 "	40 and 50
8 "	30 and 40
13 "	20 and 30
7 "	10 and 20
10 "	1 and 10
24 under 1 year.	

Add to this the 44 who died over sixty, we find there were only 60 who died between infancy and old age, these deaths being due to accidental and general causes, only one (typhoid case) to preventative diseases.

Appended is the report of the Sanitary Inspector of the work done during the year. The Board is to be congratulated upon having such a capable and painstaking official.

All of which is respectfully submitted.

J. ROBERTSON,

Medical Health Officer.

Stratford, Nov. 15th, 1903.

WINDSOR.

REPORT OF DR. J. A. ASHBAUGH, M. H. O., FOR THE YEAR 1903.

Windsor, December 16th, 1903.

To the Board of Health of Windsor:

Gentlemen,—I have the honor to report to you on such cases of contagious diseases as have come under notice of your Board, as follows:

	1903 Cases.	1902 Deaths.	
Diphtheria	15	27	4
Scarlet fever	10	29	1
Smallpox	15	7	
Typhoid fever	1	26	2
Measles	5		

The number of deaths from all causes was 199, giving a mortality rate of 14.83 as compared with 14.61 in 1902.

Regarding typhoid fever, the physicians as a rule do not report their cases as they should, according to the instructions issued by the Provincial Board of Health, and I think a notice containing all these regulations should be sent to each practitioner in the city.

As to smallpox, I may say again that, considering our situation, we are fortunate in having so very few cases. Our Isolation Hospital has been well renovated and equipped with new beds and bedding of good material, also kitchen and dining room utensils and furniture. A verandah was built, which

was always needed in the warm weather. The lack of water is, perhaps, the only drawback, and why should it not be supplied? The hospital is a public institution, and I think I am perfectly justified in asking you to use every effort to procure this necessity, and let us have, not an old-fashioned pest house, but an up-to-date isolation hospital.

I deemed it necessary on December 12th to ask the Water Commissioners to notify the public to be careful of their drinking water, as the supply was being taken at the inner intake, the outer one being blocked by needle ice. This action I took owing to the trouble we had some years ago with an epidemic of typhoid fever, traced directly to the fact that the water taken at the inner pipe was polluted by sewage from Walkerville. Inasmuch as there is danger in using this inner intake, there should be notice given to the public as soon as possible, in fact, it should never be used except in cases of absolute necessity. What is the matter of the loss of a few pounds of water pressure compared with the endangerment of one single human life?

As to the milk supply. I have inspected 16 dairies, containing 201 cows, and have found very few that were in good condition, and to be commended. It was very common to find them filthy, badly ventilated, crowded, and with lit-

tle or no drainage. As a means to improve the condition of these places, I would recommend that no license be granted until proper inspection of the premises has been made, and also, to avoid confusion, that all licenses date from January 1st.

I have intended on several occasions to analyze the milk samples, but I find that I cannot do so at my office, and I ask you to help me obtain a suitable room in the new municipal building, to be used as a laboratory, where such work could be properly done.

The spitting nuisance still remains, and to walk down town on a busy night it is disgraceful to see the filthy condition of our sidewalks. Many people can be induced to refrain from this disgusting habit by a notice here and there along the street, and those who do not heed should be dealt with by the police.

The suggestion I made a year ago to have suitable receptacles placed about the centre of the city for the reception of litter has not been acted upon. It is a matter involving but little expense, and will help materially in keeping our streets cleaner on windy nights. I might say that many of our merchants are negligent in taking proper care of the refuse from their stores, and I think that it is a matter concerning your board, inasmuch as this filth may often be the means of spreading disease.

You should enforce your by-laws more rigidly.

All of which is respectfully submitted.

J. A. ASHBAUGH.

Medical Health Officer.

WOODSTOCK.

REPORT OF DR. A. McLAY, M. H. O., FOR THE YEAR 1903.

To the Mayor and Council of the City of Woodstock:

Gentlemen,—I beg to submit the following as my annual report re sanitary matters for the year ending November 15th, 1903.

I am pleased to inform you that the health of our citizens, like as in the preceding year, has been exceptionally good. No epidemic has visited our city. Several preventable and non-preventable ailments have been easily controlled, doubtless due in a great measure to the excellent sanitary conditions. Our citizens take a deep interest in sanitary matters.

We no longer depend on the spring clean-up system, but endeavor to enforce a rigid sanitary condition throughout the year. Only 9 placards have been posted during the year, viz.: Smallpox, 1; diphtheria 3, scarlet fever, 5. All these cases were thoroughly isolated. No deaths. No placards have been posted during the past 4 months.

You are aware that a family, consisting of 3 persons, came to our city from the neighborhood of Owen Sound. Soon after their arrival they were afflicted with smallpox. Very effective measures were adopted by your Council and Board, to prevent the spread of same. An isolation hospital was promptly erected and fully equipped, and patients placed therein. Only one other member of the household contracted the dis-

ease. Quarantine was raised at the end of six weeks. I congratulate our citizens on the happy results.

I congratulate the Council on the removal of the worn-out polluted block pavement from Dundas street, and the substitution of a brick one; also on the removal of many old wooden sidewalks, and substituting cement ones, which will doubtless add to the health and comfort of our citizens and the beauty of our city.

We would again recommend that the lanes in the rear of the business portion of Dundas street be properly drained and graded. It is absolutely necessary in the interest of the health, especially, of those living contiguous thereto.

We congratulate you on the almost completion of a general sewerage system, which will doubtless add to the health and convenience of our citizens.

We would recommend that the Council provide suitable dumping grounds for garbage, etc. The work of your Board is often retarded for lack of same.

Well water has been frequently tested, wells ordered to be cleaned and filled up, and city water substituted.

Herds, byers, etc., were inspected twice during the year by Vet. Surgeon C. Brind; his report was very satisfactory.

Milk was tested three times during the year, and found up to Government standard

Number of deaths during the year 1900, 11 per 1,000, a very low mortality, 40 of the above being between the ages of 72 and 91.

Number of deaths from tuberculosis, 13; slight increase.

Number of deaths from pneumonia, 12.

Number of deaths from heart disease, 9.

Number of deaths from cancer, 5.

Number of deaths from paralysis, 7.

Number of deaths from cholera infantum, 1.

Number of deaths from typhoid fever, 1.

Smallpox 0, scarlet fever 0, diphtheria 0, measles 0.

The monthly meetings of your Board were well attended.

Yours etc.,

A. McLAY,
Medical Health Officer.

Woodstock, Ont., Nov. 15, 1903.

PART IV.

TABLE A.—MONTHLY RETURNS OF LABORATORY, 1902.

Number of specimens by months, with results, examined by the Laboratory during 1902.

Month.	Diphtheria exudates.				Sputa suspected of Tuberculosis.		Blood for the "Widal reaction."		Miscellaneous specimens.	Sewage.	Waters.		Totals for each month.
	For Release.		For Diagnosis.								Chemical.	Bacteriological.	
	+	—	+	—	+	—	+	—					
1902.													
January	11	6	23	44	19	48	12	17	3	.....	2	11	196
February	13	16	15	39	31	50	3	11	1	.....	6	39	224
March	6	7	18	25	31	62	8	20	9	.....	1	12	199
April	2	4	11	27	41	93	13	15	6	.....	1	11	224
May	3	5	4	17	43	61	7	15	2	.....	.....	6	163
June	9	7	8	15	28	65	6	10	5	.....	2	16	170
July	4	11	12	16	31	52	2	28	7	.....	.....	1	164
August .....	.....	7	6	14	27	57	15	48	8	.....	10	20	212
September ...	3	4	16	31	30	53	5	52	4	.....	11	36	245
October	9	9	30	26	38	52	27	28	9	.....	16	33	277
November	4	5	25	19	26	43	18	16	2	.....	6	8	172
December .....	.....	.....	30	50	28	52	16	23	10	.....	10	13	232
Totals for each heading	64	81	198	323	378	678	132	283	66	.....	65	206	2,478

N.B.—Add to this 459 service specimens examined at Berlin.

68

total will be 3,005.

TABLE B.—MONTHLY RETURNS OF LABORATORY, 1903.

Number of specimens by months, with results, examined by the Laboratory during 1902.

Month.	Diphtheria exudates.				Sputa suspected of Tuberculosis.		Blood for the "Widal reaction."		Miscellaneous specimens.	Sewage.	Waters.		Totals for each month.
	For Release.		For Diagnosis.								Chemical.	Bacteriological.	
	+	—	—	—	—	—							
1903.													
January.....		1	7	39	28	76	10	21	7		7	11	207
February.....	9	5	7	29	27	85	6	12	2		48	53	283
March.....	13	16	32	26	28	65	9	25	2		51	30	297
April.....	5	5	11	23	40	69	7	12	3		41	35	251
May.....	1		22	15	45	76	22	21	3		7	23	235
June.....	10	9	21	26	32	53	7	25	18		4	6	211
July.....		3	21	39	24	51	16	30		15	2	27	228
August.....	5	7	16	16	36	49	28	32			4	13	206
September....	8	4	12	14	29	66	26	31	7		14	17	228
October.....	17	13	21	42	24	74	37	39		2	22	14	305
November.....	14	15	38	36	32	52	19	39		11	22	26	304
December.....	22	32	53	71	26	66	18	21	17		9	36	371
Totals for each heading.....	104	110	261	376	371	782	205	308	59	28	231	291	3,126

TABLE C.—FIVE YEARS' SUMMARY.

Summary showing the work done by the Laboratory during the last five years.

Specimens of—	1889.	1900.	1901.	1902.	1903.
Sputa in cases suspected of Tuberculosis.....	629	703	1,006	1,056	1,153
Exudates in cases suspected of Diphtheria.....	375	526	1,018	666	851
Blood in cases suspected of Typhoid.....	164	221	405	414	513
Waters for bacteriological examination.....	116	194	215	206	291
Waters for chemical examination.....	29	33	38	65	231
Miscellaneous substances.....	50	21	95	64	54
Tissues from suspected Rabies.....	5				
Special sewage examined at Berlin.....				459	
Special waters examined at Berlin.....				68	
Sewages other than above.....					28
Tissues from suspected Anthrax.....	2	4	3	2	5
Totals for each year.....	1,370	1,702	2,780	3,000	3,126

TABLE D.—MUNICIPALITIES SENDING SPECIMENS, 1902.

Table showing municipalities that have sent in specimens month by month, with results of examination.

Municipalities.	Diphtheria exudates.				Tuberculous sputa.		Blood for the "Widal reaction."		Water.			Total for each municipality.
	For Release.		For Diagnosis.						Miscellaneous specimens.	Chemical.	Bacteriological.	
	+	—	+	—	+	—	+	—				
1902.												
Acton.....					1	3						4
Agincourt.....						1						1
Alliston.....			1		3							4
Alma.....						4						4
Alton.....						1						1
Angus.....						2						2
Arkona.....					1							1
Atttercliffe.....					1							1
Attwood.....					1				1			2
Ayton.....					1	2						3
Badden.....			1									1
Barrie.....			1		7	5		1	2			16
Bath.....						1						1
Beamsville.....						2						2
Beaverton.....				2	3	1						6
Beeton.....					1							1
Belle River.....			2		1	1						4
Belleville.....		1	4	4	7	11						27
Berlin.....		1	1	4	2	17			2		3	30
Bethany.....						3						3
Blackstock.....				1		5						6
Blenheim.....					6	7			1			14
Bowmanville.....	5	9	9	11	4	12	4	5	1			60
Bracebridge.....		5	2	3	3	5		5		1	1	25
Bracondale.....	1	2	1	4	1	2					1	12
Brantford.....	1			1		1					7	10
Breckin.....						1						1
Bridgeburg.....					1							1
Brigden.....					1							1

Table showing municipalities that have sent in specimens month by month, with results of examinations.—Continued.

Municipalities.	Diphtheria exudates.				Tuberculosis sputa.		Blood for the "Widal reaction."		Miscellaneous specimens.	Waters.		Total for each municipality.
	For Release.		For Diagnosis.							Chemical.	Bacteriological.	
	+	—	+	—	+	—	+	—				
1902.												
Brockville					2	4				12	13	31
Brooklin					3							3
Brougham						3						3
Burk's Falls	1		1	3	3	12	6	22			21	69
Burlington											2	2
Burnt River			1									1
Cainsville					2	2						4
Caistorville							1	1				2
Calabogie						1						1
Caledonia					1	1	2	1				5
Callender					1	1						2
Campden					1							1
Campbellford		2	3	2	3	5			2			17
Cannington						2		1				3
Carleton Place										1		1
Carn								1				1
Castleton			1			1						2
Cayuga			1		2	3						6
Central OntarioJct.						1						1
Chatham				1	12	36	3	1				53
Chatsworth				1	1							2
Claremont					3	3		1				7
Claude						1						1
Clinton						1		1				2
Cobden					4	3					1	8
Cobourg										5	6	11
Colborne						1						1
Coldwater				1								1
Collingwood	1		7	3	5	6	1					23
Combermere						1						1
Consecon					1							1
Copeland					1							1
Deer Park											4	4
Delhi						5						5
Delta					1	1						2
Denbigh		1		1		2						4
Desborough						1						1
Dickenson's La'd'g					1	7						8
Douglas						2	1					3
Dover Centre					2	3						5
Dresden						2						2
Dromore		1	1									2
Dundalk					3	4						7
Dundas			1			1	1					3
Dunnville					2	2						4
Durham			2	1		3						6
Eganville				2	3	4						9
Eglinton	1		3	2		3	1	4			1	15
Elmvale				1	1							2
Embro			2	1	1	1		1				6
Emsdale					1	1		1				3
Enniskillen							1					1
Erin			5	6	1	5						17

Table showing municipalities that have sent in specimens month by month, with results of examinations.—Continued.

Municipalities.	Diphtheria exudates.				Tuberculous sputa.		Blood for the "Widal reaction."		Waters.			
	For Release.		For Diagnosis.						Miscellaneous specimens.	Chemical.	Bacteriological.	Total for each municipality.
	+	—	+	—	+	—	+	—				
1902.												
Essex				2	2	4	4	2	1		2	17
Ethel					1	2	1	2				6
Everton							1					1
Everett					1	4						5
Exeter						1						1
Fenelon Falls			1	1								2
Fenwick				1				1				2
Fergus					2	4	3	3				12
Fisherville				3	1	7						11
Fort Francis				2								2
Frankford					3							3
Frankville					1	1						2
Galt	4		1	6	1	1		1	1			15
Gananoque										2	2	4
Georgetown	1	1						1				3
Glencoe					1							1
Goderich					1	1	1					3
Gormelly							1	2				3
Grand Valley						2		1				3
Gravenhurst										3	3	6
Guelph			5	1	12	9	8	14	1			50
Hagersville						4						4
Hamilton			1	3	3	14	4	6		5	35	71
Harriston			2	3							1	6
Harrow					1		1					2
Harrowsmith					1	2					1	4
Havelock				1		1			2			4
Hastings					2							2
Heathcote					1	1						2
Hepworth						2						2
Hespeler	1	1	2	2	11	32	3	6	1			50
Holstein					1							1
Horning's Mills					1	1						2
Huntsville			6	3	2	1						12
Ingersoll							4	6	1		1	12
Inglewood		1										1
Jarvis					1	3			1			5
Kearney			1	3				7				11
Kempton						1						1
Keewatin						7						7
Killaloe						1						1
Kincardine						2						2
Kingsville					2	2			1			5
Kinmount	2	7	2	12								23
Lambton						1		1				2
Lanark						1						1
Langton						3		1				4
Leamington						1		1				2
Lindsay			2									2
Lisle						3						3
Listowel									*1			1
Little Britain			3	3		1						7
Little Current											1	1

* Anthrax.

Table shewing municipalities that have sent in specimens month after month, with results of examinations.—Continued.

Municipalities.	Diphtheria exudates.				Tuberculosis sputa.		Blood for the "Widal reactions."		Waters.			
	For Release,		For Diagnosis.						Miscellaneous specimens.	Chemical.	Bacteriological.	Total for each municipality.
	—	—	—	—	—	—						
1902.												
Madoc.....					8	11	1	8				28
Magnetawan.....				1								1
Manilla.....					2	4		6				12
Markdale.....			1	1	1	3	2	1	1			10
Marlbank.....					2	3						5
Marmora.....					3	3	4				1	11
Mattawa.....					1	1	1					3
Maxwell.....	3		3									6
Meaford.....			1		1	3						5
Merriton.....					2							2
Metcalfe.....			3	1								4
Midland.....			1	1	4	4	1				11	22
Millbrook.....										1	1	2
Milton.....						1			1		4	6
Mimico.....			1	1	4	2	1	1		2	2	14
Minden.....			1									1
Mitchell.....				1	1	1					1	4
Moose Creek.....					1	1						2
Moorefield.....					1	3						4
Mooreville.....					1							1
Morrison.....					1	1	1	1				4
Mount Forest.....			1	1	3	2						7
Muskoka.....											1	1
Napanee.....					5	8					1	14
Newboro.....					2	1						3
Newburg.....	1			1		1						3
Newcastle.....	21	6	6	3	1	1						38
Newmarket.....			1	1				1				3
New Germany.....				2	2							4
New Hamburg.....					1	2						3
New Dundee.....					1	3	1					5
Niagara Falls.....				1		2	2	1			6	12
North Gower.....			1	1	3	3						8
Norwich.....						1						1
Oakwood.....						2		1				3
Onemee.....					1		2	2				5
Orangeville.....					1							1
Orillia.....					2	4						6
Orono.....			1									1
Oshawa.....			1									1
Osnabrook Centre.....					1							1
Ottawa.....								2				2
Owen Sound.....					8	13			2			23
Palmerston.....		2	1	3	4	3	1	2			1	17
Parkham.....									1			1
Parry Sound.....	1		1	4	3	2		6				17
Penetanguishene.....								2				2
Perth.....	2		4	3	2	3		2			1	17
Peterborough.....					5	5	1	1				12
Phelpston.....					3	1						4
Pickering.....					1	2		4				7
Pictou.....	3	9	7	29	2		1	1				52
Plattsville.....				2	5	7						14

Table shewing municipalities that have sent in specimens month after month, with results of examination.—Continued.

Municipality.	Diphtheria exudates.				Tuberculous sputa.		Blood for the "Widal reaction."		Miscellaneous specimens.	Waters.		Total for each municipality.
	For Release.		For Diagnosis.							Chemical.	Bacteriological.	
	+	—	+	—	+	—	+	—				
1902.												
Poplar Hill						3						3
Port Arthur										1	8	9
Port Colborne					1	1						2
Port Dalhousie					1							1
Port Elgin				1	3	6						10
Port Hope			6	2	1	1					7	17
Port Perry			1			3		1		1	1	7
Port Rowan				1				1	1			3
Port Sydney	3	1	1									5
Preston									2	1	2	7
Priceville					1	1						2
Richmond Hill				1	1							2
Ridgetown					1							1
Renfrew				7	11	22						40
Rocklyn							1					1
Rockwood						2	1	1				4
Rosseau					1			1				2
St. Catharines					2	1	8	8	9			28
Sarnia						1	1	1	1	6	6	16
Seaforth			1		1	1	2	5				10
Shannonville					4	4						8
Shedden			1									1
Simcoe				1	6	9	1	2				19
Singhampton							1	1				2
Shallow Lake									3			3
Sault Ste. Marie					1	2				1		4
South Woodslee					1	4		1				6
Sparta			1			1						2
Spencedale				2								2
Springbrook					1	6						7
Sterling					3	3		2				8
Stobie Mines	4											4
Strathroy					1					3	5	9
Stouffville						2			1			3
Sunderland					1		1					2
Sutton West					1							1
Tamworth					1		1	3				5
Tara					5	8						13
Thedford		1		4		1		1	1			8
Thornbury					1	1						2
Thorold			1			1	1				2	5
Tillsonburg			1	1			4	3	1			10
Toronto	1	2	30	50	34	54	31	76	18		1	293
E. Toronto	5	1	12	11	1	10	3	3			2	49
Toronto Junction	10	21	28	25	11	17	3	11			1	128
Trenton					1	6		1				8
Tuscarora			1			2						3
Tweed					1	5						6
Unionville					1	1					1	3
Uxbridge					2	6		1	2			11
Walkerton						3	1	1				5
Wallaceburg			4			8				1	1	14
Waterloo	1	2	1	6								10

Table showing municipalities that have sent in specimens month after month, with results of examinations.—Continued.

Municipalities.	Diphtheria exudates.				Tuberculous sputa.		Blood for the "Wildal reaction."		Miscellaneous specimens.	Waters.		Total for each municipality.
	For Release.		For Diagnosis.							Chemical.	Bacteriological.	
	+	—	+	—	+	—	+	—				
1902.												
Watford	2	1	1	8	2	5	2	5	1			25
Welland			2		1	1	1					7
Weston		1	6	13	1	2		13	1	1		43
Wheatley			1			1						2
Whitely					2	8			2			12
Winchester										1	3	4
Windsor				1	5	8						14
Wingham			5	5	1	1						12
Wroxeter					2	1						3
Woodford				1								1
Woodhill					3	2	2					7
Woodstock				2	13	12		1				28
Yarker					1							1

TABLE E.—MUNICIPALITIES SENDING SPECIMENS, 1903.

Acton							3					3
Allandale			1				1					2
Alliston					5	6						11
Alma						6						6
Alton						2						2
Alvena						2						2
Alvinston			1	1								2
Ancaster												3
Angus			1			4						5
Arcona						1						1
Arnprior	2	3	5	6		1	1	1				19
Arthur						1						1
Attercliffe					1	2						3
Aurora						1						1
Aylmer			1		1							2
Ayr							1					1
Baden		1	1	2								4
Bancroft						1						1
Barrie			1	4	6	11	10	4				36
Bath						5	1	3				9
Beamsville			1		2							3
Beaverton			2	1	2	4		1		2		12
Beeton				1								1
Belleville	11	12	9	4	4	9	2	4		2		57
Belle River					1	1						2
Berlin		1			4	15			4	1	1	26
Bethany					3	4						7
Billings Bridge				1								1
Blackstock						2	5	2	1			10
Blenheim				1	4	5		2				12
Bloomfield					1							1
Bobcaygeon				1	1							2
Bond Head		2	1			1	1					5
Bowmanville	2	5	4	10	5	10		1				37
Bracebridge			1	1	1	6	3	6				13
Bracondale						2						2
Bradford			1	4			1	2				8

* Anthrax.

Table showing municipalities that have sent in specimens month after month, with results of examinations.—Continued.

Municipalities.	Diphtheria exudates.				Tuberculous sputa.		Blood for the "Widal reaction."		Miscellaneous specimens.	Waters.		Total for each municipality.
	For Release.		For Diagnosis.							Chemical.	Bacteriological.	
	+	—	+	—	+	—						
1903.												
Brampton.....										2	6	8
Brantford.....						1			7	6	12	26
Brockville.....			1	1	2	8				6	1	19
Bridgeburg.....					1							1
Brigden.....			1									1
Brooklyn.....					3							3
Brougham.....						1						1
Brussels.....				1				1				2
Burford.....				1				1				2
Burkton Station...				1								1
Burk's Falls.....			3	8		14	7	13		1	22	68
Byng Inlet.....										4	4	8
Cainsville.....			1		1			1				3
Caistorville.....					2	3						5
Caledonia.....			1				4	4				9
Callender.....						2						2
Campbellford.....		2	5	5	6	7	1			1		27
Campden.....						1						1
Cannington.....				2	1	2		1				6
Carp.....			1		3	4						8
Castleton.....					1	1						2
Canaraqui.....						3						3
Cayuga.....						8						8
Chatham.....		1		1	16	32	1	3				54
Chatsworth.....				1	1							2
Chesley.....			3								2	5
Claremont.....					1	2		1		1		5
Clarksburg.....				2		2						4
Claude.....				4								4
Cobden.....					1	2		1				4
Cobourg.....				5			1	1				7
Coldwater.....					2							2
Coldhill.....			1	1				1				3
Collingwood.....			2	3	10	7	1			6	6	35
Combermere.....					2							2
Consecon.....					1	2						3
Cordova Mines.....						1						1
Creemore.....					1	4						5
Delhi.....					1	4						5
Denbigh.....				5		1						6
Depot Harbor.....						2		1	1			4
Deseronto.....					1							1
Dewart.....						3						3
Dickenson's Land'g						3	1					4
Dover Centre.....					1	3						4
Douglas.....	2	3	8	4	1							18
Drayton.....											1	1
Dresden.....						3						3
Dromore.....						1						1
Drumbo.....						1					2	3
Dundalk.....					2	9						11
Dundas.....					2	4		1				7
Dunnville.....				1	1			4				6

Table showing municipalities that have sent in specimens month after month, with results of examinations.—Continued.

Municipalities.	Diphtheria exudates.				Tuberculous sputa.		Blood for the "Widal reaction."		Miscellaneous specimens.	Waters.		Total for each municipality.
	For Release.		For Diagnosis.							Chemical.	Bacterio- logical.	
	+	—	+	—	+	—	+	—				
1903.												
Durham.....					1	7						8
Edgar.....				1								1
Edmonton.....					1	1						2
Eganville.....	1	2	4	3	6							16
Eglington.....			3	1		1	1					6
Elgin Mills.....									1			1
Elmvale.....						7		1				8
Enibro.....			1									1
Elmsdale.....					1	3						4
Enniskillen.....			2		1		1					4
Enterprise.....			1			2						3
Erin.....			1	3		7	1		1			13
Essex.....					5	6	4	13			1	29
Ethel.....				1	1	1			1	3		7
Everett.....						9						9
Everton.....				1		1			3			5
Exeter.....					1				1	2		4
Fenwick.....	1		1						1			3
Fenelon Falls.....			2	3	2	3						10
Fergus.....					4	8	2	1				15
Fisherville.....						4	4	4				12
Fordwich.....			1									1
Forest.....					1							1
Fort Francis.....			2	2								4
Frankford.....						5						5
Frankville.....						4	8					12
Freelton.....						2	1					3
Galt.....			1	6	4	3			1			15
Gananoque.....										13	6	19
Georgetown.....					1				1			2
Glencoe.....					1	1					1	3
Goderich.....					1							1
Gore Bay.....				1								1
Gormely.....									3			3
Grafton.....					2	1						3
Guelph.....	5	9	6	17	5	14	11	21	3			91
Hagersville.....						1					1	2
Hanover.....					1							1
Hamilton.....				1	2	4	1	6		14	1	29
Harriston.....		1	4	5							1	11
Harrow.....						2			1			3
Harrowsmith.....						2	1	1				4
Hastings.....						1						1
Havelock.....						3						3
Hawkesbury.....							1	2				3
Heathcote.....						3						3
Hepworth.....			2									2
Hespeler.....					8	16	4	12				40
Holstein.....					2	2						4
Huntsville.....			3	7	1							11
Ingersoll.....					2	3	4	10		1	6	26
Inwood.....				2								2
Jarvis.....					1	3						4

Table showing municipalities that have sent in specimens month after month, with results of examinations.—Continued.

Municipalities.	Diphtheria exudates.				Tuberculous sputa.		Blood for the "Widal reaction."		Miscellaneous specimens.	Waters.		Total for each municipality.
	For Release.		For Diagnosis.							Chemical.	Bacteriological.	
	+	—	+	—	+	—	+	—				
1903.												
Jordan			1	3								4
Kearney			1	2		2		1				6
Kincardine			1									1
King				1								1
Kingston										107	84	191
Kingsville			1	1								2
Kinloss						2						2
Kinmount	2	5	3	9								19
Laketfield			1	2								3
Lanark			1		1	4		4				10
Langton			1	1	1	2	1	3				9
Lindsay			1	2						2		5
Lisle					2	4						6
Listowel	2	3	3								1	9
Little Britain				3		2						5
London										2		2
Lucknow					1	2						3
Lyn			1									1
Madoc				1	2	10	4	3				20
Magnetawan			5	1		2						8
Mallorytown						1						1
Manilla						2	1	2				5
Markdale				1		2						3
Markham						1						1
Marlbank					1							1
Marmora						2	4	5				11
Marshville	7	1	1	1								12
Maxwell		1		1							2	2
McGregor						1	3	1				5
Meaford			2	1	1	1						5
Merrittton						2						2
Metcalfe				1								1
Midland			1	1	2	5						9
Millbrook		1		2								3
Milton							1					1
Mimico		1	1	1		4	1	1				9
Minden			3	1		1						5
Mississippi St.			1	3	3	1						8
Mitchell						1						1
Moore Creek						1						1
Moorefield					2	7						9
Morristown			4	3		1	1	5				14
Mountain				1		1						2
Mount Forest			1	5	6	7						19
Napanee	1	1	2		1	6						11
Nassagaweya				2								2
Newboro						7	1	1				9
Newburg						3				1	1	5
Newmarket	3		1			1						5
New Dundee	1		2	1								4
New Durham					2	2		1				5
New Hamburg	2		5	3	1	2						13
New Lowell						1						1

Table showing municipalities that have sent in specimens month after month, with results of examinations.—Continued.

Municipalities.	Diphtheria exudates.						Water.					
	For Release.		For Diagnosis.		Tuberculous sputa.		Blood for the "Widal reaction."		Miscellaneous specimens.	Chemical.	Bacteriological.	Total for each municipality.
	+	—	+	—	+	—	+	—				
1903.												
Niagara Falls					1	5		1	1		6	14
North Gower						2						2
Norwich			1									1
Norwood.....							1					1
Oakwood				1	1			1				3
Omence			2			1	3	3				9
Orillia					3	5						8
Orono				1	2							3
Oshawa			2	3	1						2	8
Oshweken								1				1
Osnabrook Centre..					1	1	1					3
Ottawa								1		4	2	7
Otterville.....										2		2
Owen Sound.....				2	1	7		1				11
Palmerston				1	3		1	5		1		11
Palmyra.....								1				1
Paris				23						3	5	31
Parkham						2						2
Parry Sound.....			2	1	1	11	3	3				21
Pelee Island				1								1
Pembroke			1			1						2
Penetanguishene..					1							1
Perth		5	8	7	2	1	1				3	27
Peterborough	6	10	5	8	10	6					31	76
Phelpston			2		1	4						7
Pickering				1	1	4	1	5				12
Picton		2	2	4	2							10
Pinkerton				1		1						2
Plattsville			1	1	3	14	2					21
Pontypool						1						1
Port Arthur								3		1	1	5
“ Colborne			1			3	2				1	7
“ Elgin					6	9						15
“ Hope	2	5	4	5		1		1		4	6	28
“ Perry			1	1	7	8				3	9	29
“ Robinson						1						1
“ Sydney			1	2								3
“ Sandfield				1								1
Prescott				1		1						2
Preston	1		2									3
Priceville						1						1
Regina				1								1
Renfrew	1		2	6	11	24					6	50
Richmond Hill....					3	2				1		6
Ridgeway	1		1									2
Ripley					1							1
Rocklyn.....					1	9						10
Rockwood						2	2	1				5
Rosemount				1								1
Rosseau								2				2
Ryerson						1						1
St. Catharines				1	11	13	1	4	12			55
St. Joachim										1	1	2

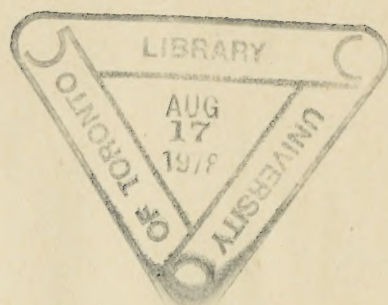
Table showing municipalities that have sent in specimens month after month, with results of examinations.—Continued.

Municipality.	Diphtheria exudates.				Tuberculous sputa.		Blood for the "Widal reaction."		Miscellaneous specimens.	Waters.		Total for each municipality.
	For Release.		For Diagnosis.							Chemical.	Bacteriological.	
	+	—	+	—	+	—						
1903.												
St. Mary's.....										1		1
St. Thomas.....	1	1		1		2			1			6
Sarnia.....			1	1		1	8	1		21	2	35
Schomberg.....	2	2	1	1								6
Seaforth.....						1		2				3
Shakespeare.....				1								1
Shallow Lake.....						1						1
Shannonville.....					2	7						9
Sharbot Lake.....					1	1						2
Shelburne.....								1				1
Simcoe.....					1	8	1				6	16
Singhampton.....					2	1						3
Smith's Falls.....				2								2
South River.....			1		1							2
South Woodlee.....				1		2						5
Sparta.....				1	3	2			2			8
Springbrook.....						8						8
Stirling.....					2	5					1	8
Stittsville.....						2						2
Strathroy.....									3	5	6	14
Stratford.....									*27			27
Tamsworth.....				1	1	1	1					4
Tara.....					4	4						8
Tavistock.....			1									1
Thamesford.....			1									1
Thedford.....					1							1
Thistleton.....								2				2
Thornedale.....					3							3
Thornhill.....										3	3	6
Thorold.....			1		1	1						3
Tillsonburg.....							1	1				2
Toronto.....	5	3	25	57	26	61	62	78	6		2	325
Toronto, East.....	1		3	8	3	1	2	3				21
Toronto Junction.....	29	23	40	23	11	14	2	2			2	146
Trenton.....	1		3	1	3							8
Trout Creek.....			1									1
Tuscarora.....			1									1
Tweed.....					4	4						8
Underwood.....						1						1
Unionville.....						1						1
Uxbridge.....	3	1	1		1	9						15
Walkerton.....					1	4		1			3	9
Walkerville.....					2							2
Wallaceburg.....					4	5	1					10
Wardsville.....						1						1
Waterford.....			1	3		1	1			2	2	10
Watford.....	4	9	7	8	1	2	1	3				35
Welland.....			1				2	1				4
Weston.....	1	3	10	18		2	1	8				43
Westwood.....					2			2				4
Wheatley.....	9	1	1	3		1						15
Whitby.....					2							2
Whitechurch.....					1							1

* Sewages.

Table showing municipalities that have sent in specimens month after month, with results of examinations.—Continued.

Municipality.	Diphtheria exudates				Tuberculous sputa		Blood for the "Widal reaction."		Waters.			Total for each municipality
	For Release.		Tuberculous sputa.						Miscellaneous specimens	Chemical.	Bacteriological.	
	+	—	+	—	+	—	+	—				
1903.												
Whitely.....			1		1	10						12
Whitevale.....						1						1
Wilfred.....						2						2
Winchester.....			1			3		2	1			7
Windsor.....					7	3	6	2				18
Wingham.....			1	3	7	5						16
Woodbridge.....				1	1			1				3
Woodhill.....						2						2
Woodstock.....				2	7	15	5	4	1			34
Woolner.....						1						1
Wroxeter.....		1	8	2		1						12
Wyoming.....						1						1
Yarker.....					1	3						4
Zurich.....						3						3



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